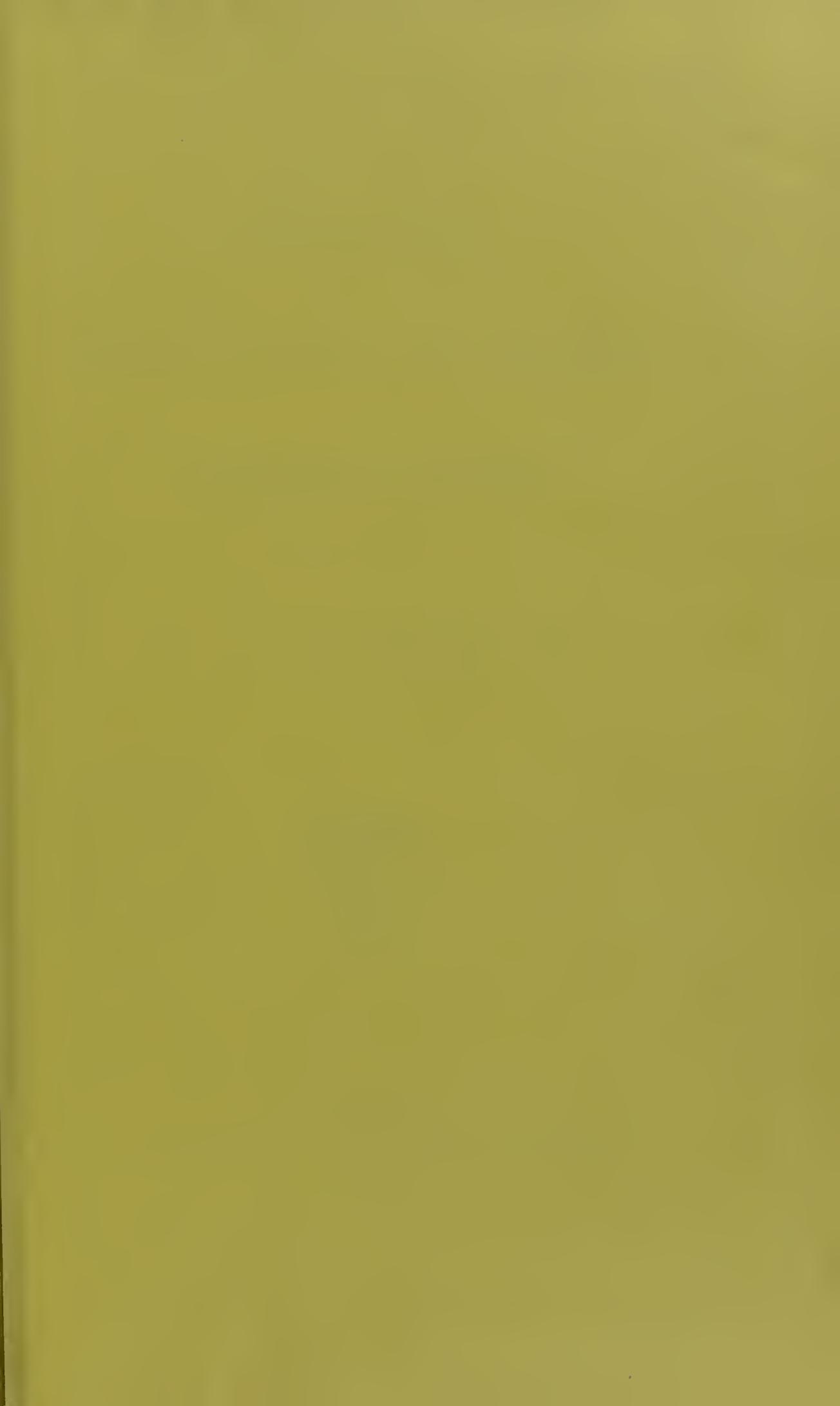
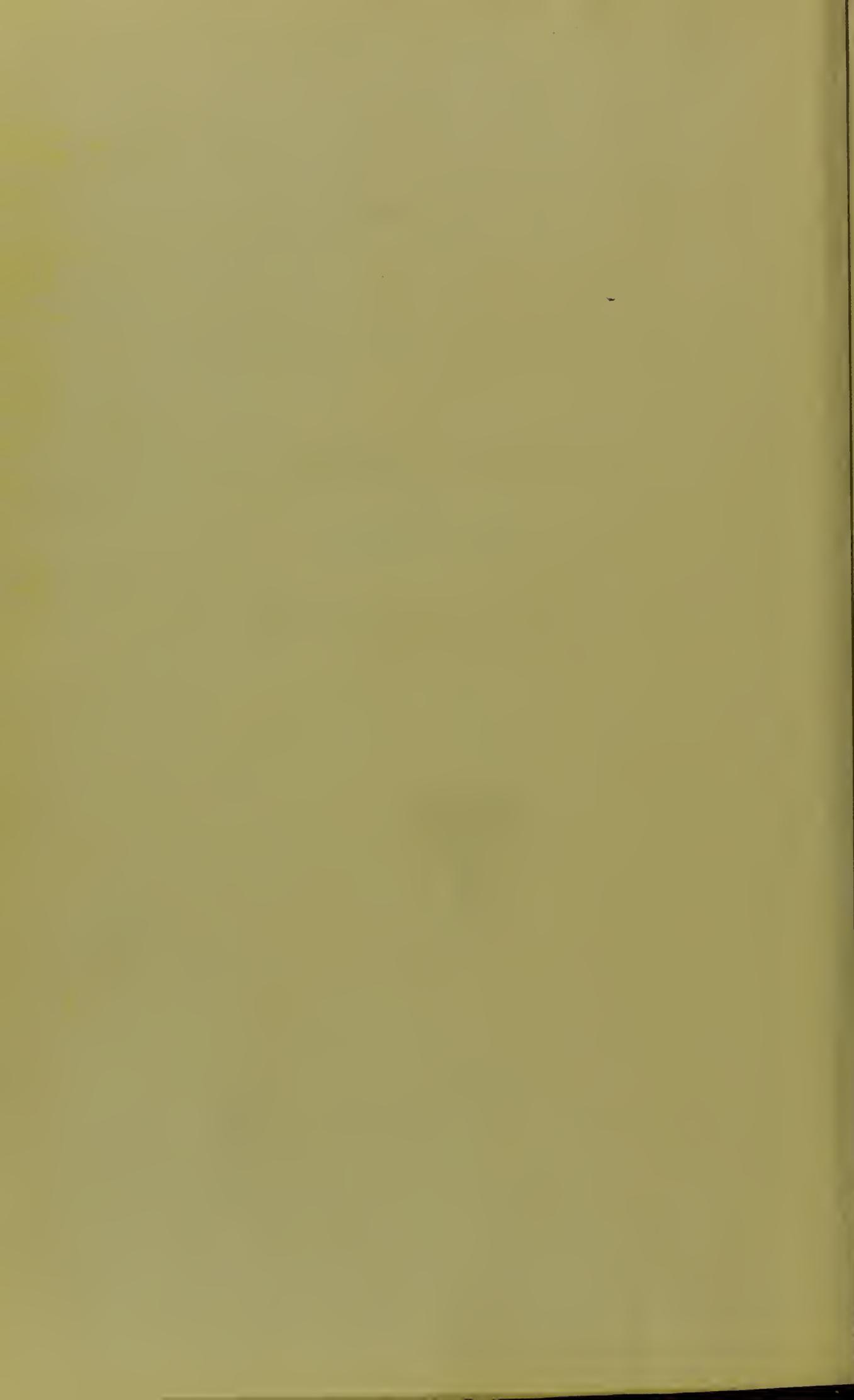


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Observations
ON THE
HISTORY, PATHOLOGY, AND TREATMENT
OF
CANCEROUS DISEASES.

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Part II.

MELANOSIS.



P R E F A C E.

These observations on Melanosis appeared in the early part of last year in the Midland Quarterly Journal of the Medical Sciences; they form the first portion of a series of observations on the history, pathology, and treatment of cancerous diseases generally, on which I am now occupied.

The next division of the subject will be comprised under the designation of Encephaloid Cancer, and will be shortly published.

The distinctness of Melanosis and the peculiar interest belonging to many of its features warrant, in my judgment, its appearance in the present form.

To those gentlemen who have so freely communicated to me the cases of this disease which have occurred in their practice my acknowledgments are especially due, and to none more than to my distinguished friends Mr. Paget and Mr. Holmes Coote.

On the completion of this work an Appendix will be added to bring up the present state of our knowledge regarding Melanosis.

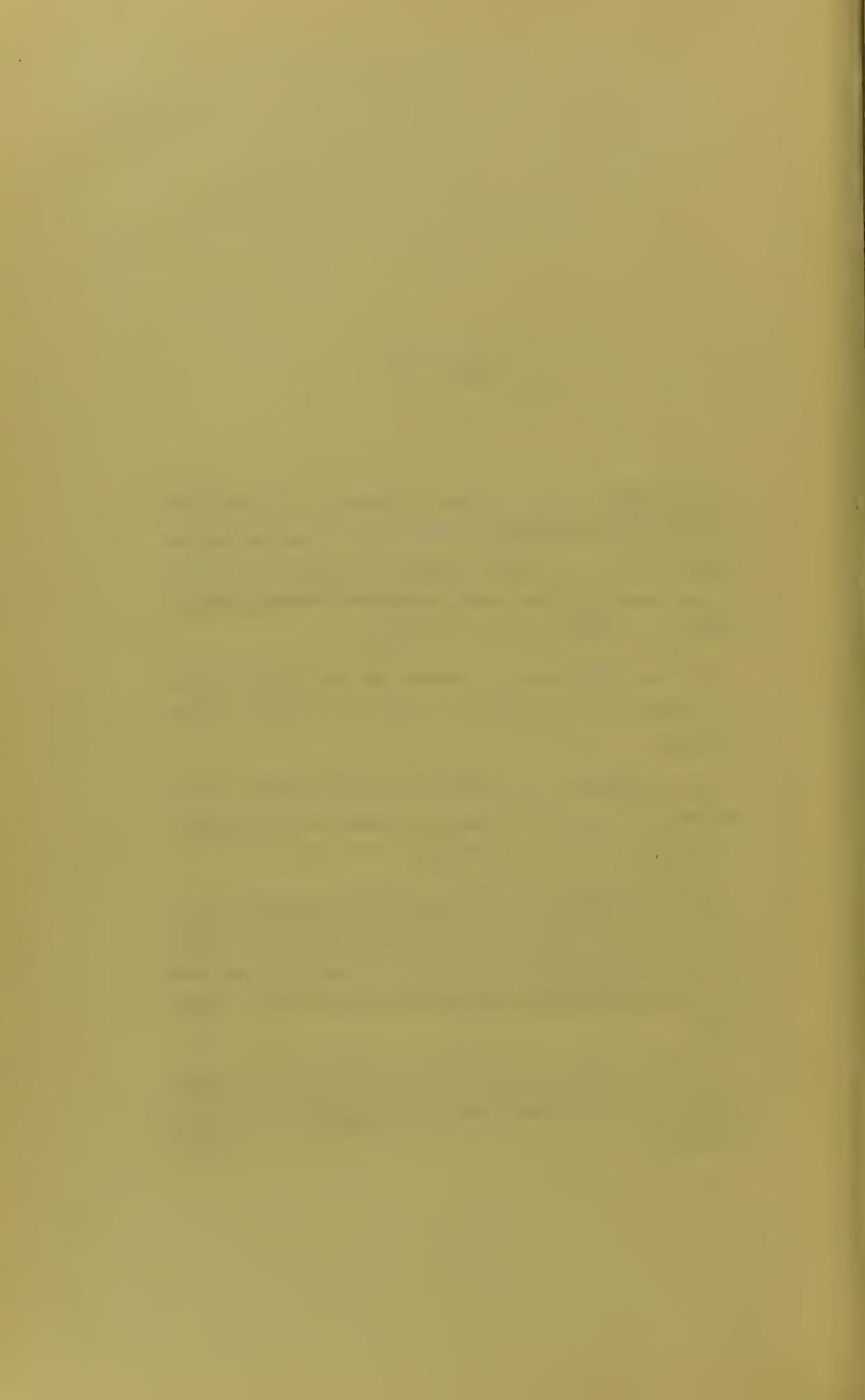


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DESCRIPTION OF THE PLATES.

PLATE I.

Fig. 1 represents the appearance of the primary disease in the case of H. W. J. (p. 20). The warty character of the growth is pourtrayed with the slate-coloured melanotic changes irregularly dividing its otherwisc pink aspect.

Fig. 2. Melanotic subcutaneous tubercles, situated on the front of the leg in various stages of growth.

Fig. 3. The same, from over the head of the tibia, more advanced, and assuming the condition of flattened tubercles, and partially softening.

PLATE II.

The primary disease in the case of P. C. (p. 22).

PLATE III.

An internal view of the calvarium. The dura mater has been stripped off. The bone is seen stained with melanotic patches. Some of these may be observed to stain across the diploe.

PLATE IV.

A view of the posterior aspect of the heart, showing the deposit of melanosis beneath the pericardium, on the fleshy substance of the ventricle.

PLATE I.
Pemberton on Melanosis.



Fig. 2.



Fig. 3.

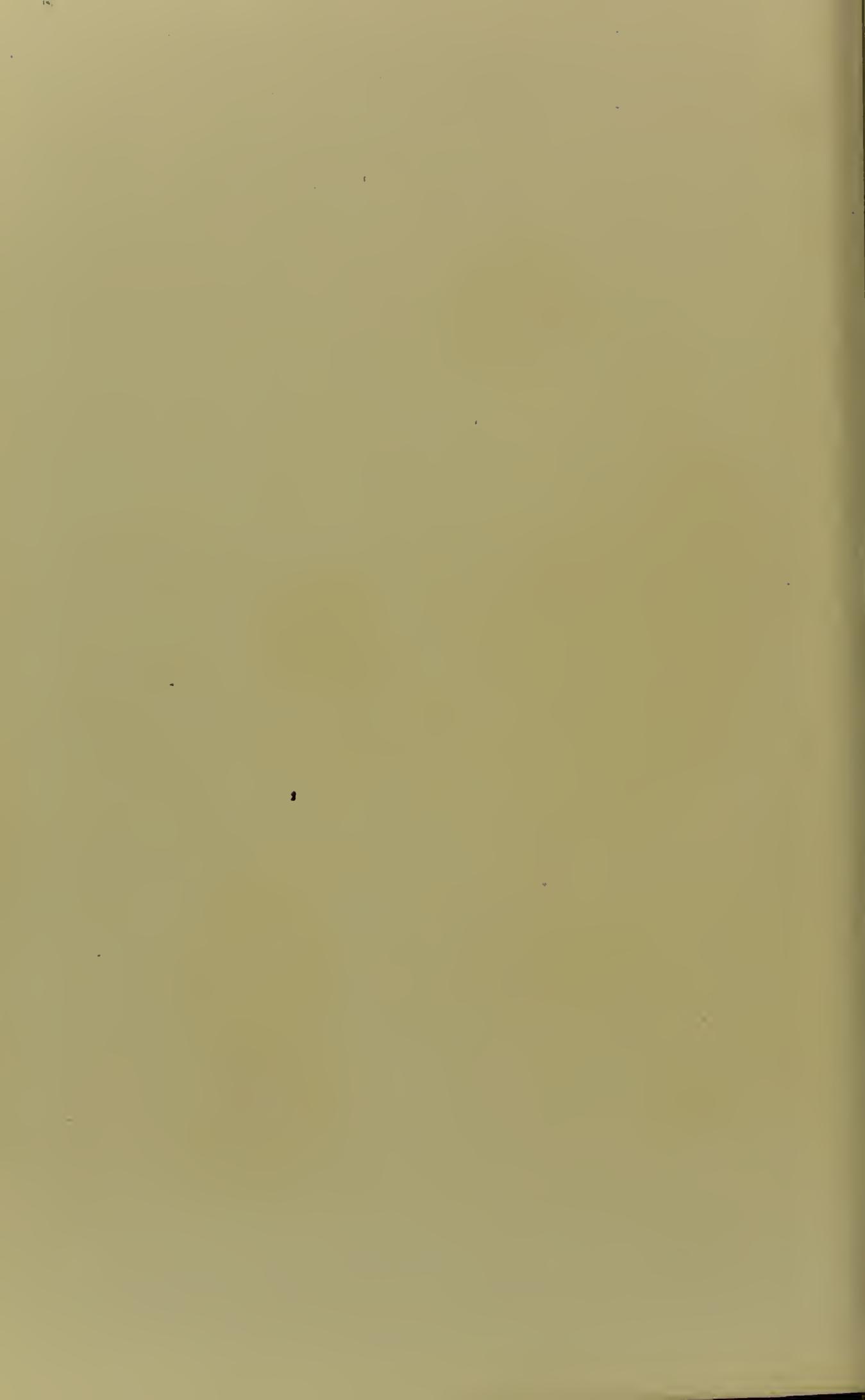


PLATE II.
Pemberton on Melanosis.



Pemberton on Melanosis.

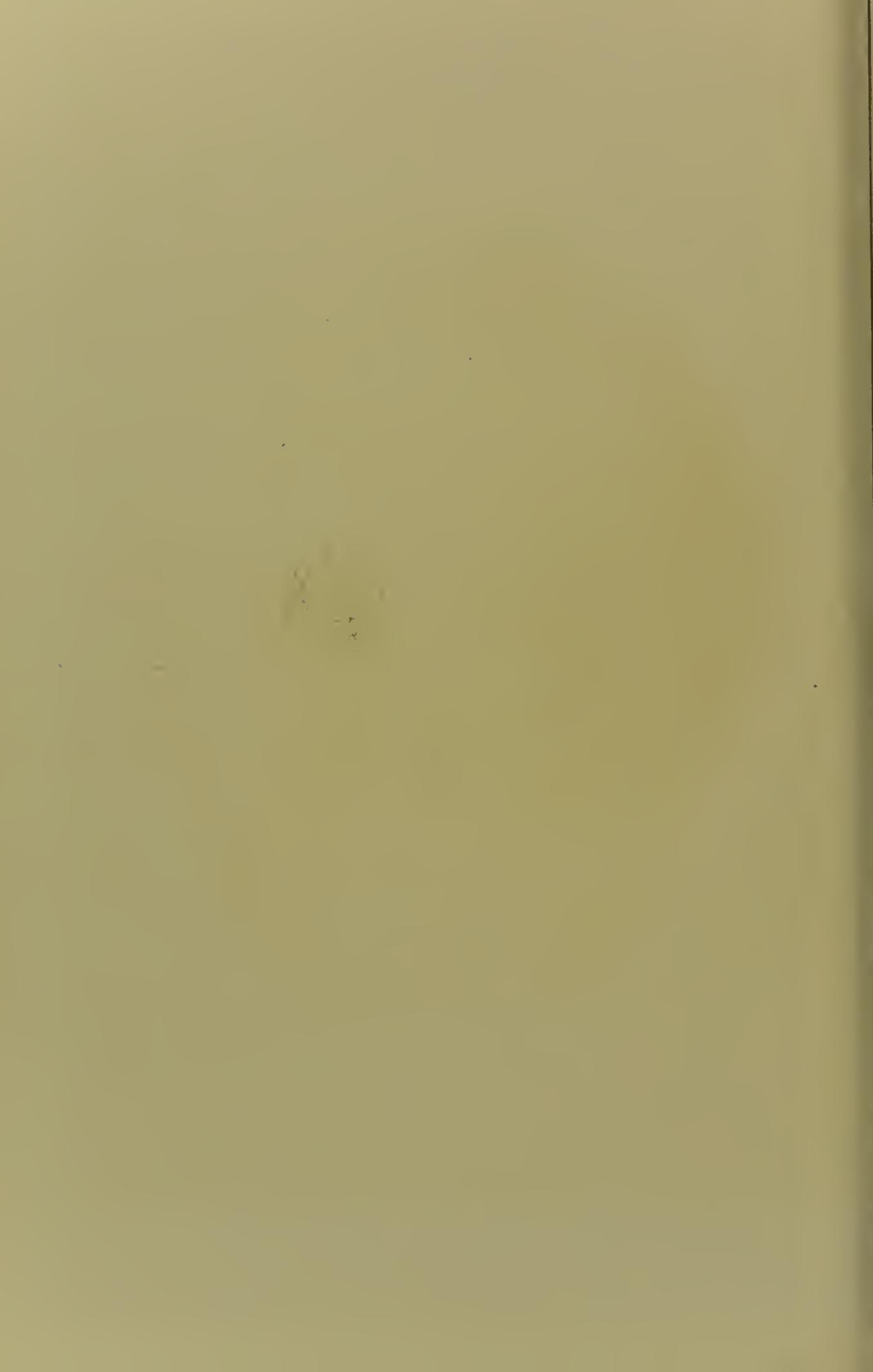


PLATE III.
Pemberton on Melanosis.





PLATE IV.
Pemberton on Melanosis.



Part I.

ON MELANOSIS.

"Quels sont les troubles de l'économie à la suite desquels ces mélanoses surviennent? Quels sont les changemens qui se passent dans les tissus où elles se développent, et par quels signes généraux ou locaux peut-on en reconnaître la présence pendant la vie? J'avouerai que la pathologie et l'anatomie pathologique ont tout à découvrir à cet égard, et que les observateurs n'ont rien dit qui puisse nos moyens d'établir un diagnostic."

BRESCHET.

The subject of melanotie eameer, its characteristics and tendencies, has claimed the attention of pathologists and surgeons during the past half century.

The Baron Dupuytren, it is said, was the first to recognise this disease, and to describe it; but unquestionably M. Laennec was the earliest authority who afforded the profession an opportunity of judging of its nature, in the memoir which he read before the Society of the Faculty of Medicine of Paris, in 1806. From him we have obtained the name melanotie—a term neither sufficiently correct nor exact, but which yet is maintained as descriptive of one peculiarity of the disease —its colour.

Its further elucidation was subsequently undertaken by Breschet, who published his *Considerations* in Paris, in 1821.*

In this country, Wardrop† and Allan Burns‡ recognised the disease in the eye, and pointed out some of its pathological conditions as early as 1809; but although they recorded some of its peculiarities, they yet placed it in the same category with fungus hæmatodes.

* *Considérations sur une Altération Organique, appellée Dégénérescence Noire, Melanose, Cancer Melané, &c.*; 4to., Paris, 1821.

† *Observations on Fungus Hæmatodes*. London; 1809; pp. 59 and 74.

‡ *Anatomy of Head and Neck*. Edinburgh; 1811; p. 349.

In 1820, Dr. Norris,* of Stourbridge, under the description of a case of "fungoid disease," recorded the history of a patient whom he had under his care three years previously, whose disease during life, and whose internal organs after death, presented the best evidences of melanosis that had then been met with.

In 1823, Messrs. Cullen and Carswell† read a paper before the Medico-Chirurgical Society of Edinburgh, on melanosis, and they prefaced the narration of two cases illustrative of the disease, by a reference to the case recorded by M. Breschet, and which they had enjoyed the opportunity of examining with him in the pavilions of the School of Medicine of Paris.

Mr. Fawdington,‡ in 1826, published "a case of melanosis," and accompanied it by some "general observations" on its pathology. This case is rendered most valuable by the addition of some coloured lithographic plates, almost the first delineations of the disease that had been attempted. It is somewhat remarkable that no allusion whatever should have been made in these "general observations" to the cases of Messrs. Cullen and Carswell, which in some respects, especially in the affection of the bones, more completely represented the disease.

In his *Treatise on Pathological Anatomy*, M. Andral§ gave an admirable description of melanosis, enumerating not only the different forms in which it displayed itself, but also the various tissues which it attacked.

Dr. Robert Carswell,|| whose early interest in the subject has already been referred to in association with the name of Dr. Cullen, devoted a section to its consideration under the name of melanoma, in his *Illustrations of the Elementary Forms of Disease*. He included under this designation, all the melanotic formations and black discolourations described by various authors, but he divided them into two distinct groups, under the headings of "true" and "spurious melanosis."

The fact of melanosis, in its ravages, not being confined to man, but being more common amongst horses, led to the further prosecution of its study in some of the veterinary schools of the continent, and to the publication by Noack¶ of a treatise on its peculiarities both in man and in the horse, from which the most valuable information may be derived.

The periodical literature of the profession during the past five-and-

* *Edinburgh Medical and Surgical Journal*, October, 1820; p. 562.

† *Transactions of Medico-Chirurgical Society, Edinburgh*; vol. i, p. 264.

‡ *A case of Melanosis, with general observations on the Pathology of this interesting disease*. London, 1826.

§ *Treatise on Pathological Anatomy*; translated. Dublin, 1829; v. i, p. 548.

|| *Pathological Anatomy*. London, 1838.

¶ *Comment Vet. Med. de Melanosi cum in Hominibus tum in Equis obveniente*. Leipzig et Paris, 1826. Melanosis has been observed amongst other animals—as the dog, cat, rabbit, and mouse. In the liver of the ox; and also amongst some birds.

twenty years has afforded, from time to time, a record of some solitary instance of the disease in the human subject: such examples have, however, been rare, and the cases have been by no means complete in many essentials of detail. Generally, these have been described as assuming one of two forms—the one, where the malady has been unsuspected during life, being revealed unexpectedly in the dead house; the other, where the interference of the surgeon has been required for its removal from either of its favourite seats, the skin or the eye.

In regard to the last-mentioned locality, and for some very valuable observations on melanosis generally, the profession are indebted to Mr. Holmes Coote,* who read a paper on the subject before the Royal Medico-Chirurgical Society of London in 1846. I shall have occasion, however, to refer to Mr. Coote's experience in another place.

There is an interest, then, about melanosis, of a twofold character—an interest belonging to it pathologically, and an interest belonging to it surgically.

The first, in so far as it tends to the elucidation of its nature and effects, I shall most carefully pursue in the following pages. The second, in its important bearings on diagnosis in the primary stage, and on treatment by operation, I shall endeavour to consider by a careful reference to the facts presented in its earliest indications, and by a comparative statement of the origin, treatment, progress, and termination of cases, which have been diligently observed and faithfully narrated.

Melanotic cancer is met with in two forms, either as a primary or as a secondary disease.

As a primary disease its most frequent seat is the skin or the eye, and less frequently it is encountered in the subcutaneous cellular tissue.

It has been observed also in its first form in the lower jaw,† in the testicle,‡ vagina,§ and rectum,|| and it is said likewise to have been seen in the liver.¶ The case is not, however, completely authenticated.

The appearances ordinarily presented by melanotic cancer, as a primary formation, are—

In the skin. The production of a small, solitary, deep brown, black, or blackish spot, situated on some part of the skin. Very frequently this spot is located near to a congenital mole or wart, or the congenital marks themselves undergo melanic degeneration.

The disease may remain quiescent at first, but sooner or later an increase in its dimensions becomes evident—the neighbouring glands are contaminated, or its progress may be manifested by the development

* *London Medical Gazette.* 1846; page 1051.

† Müller's *Essay on Cancer.*

‡ Paget: *Lectures on Surgical Pathology;* vol. ii, p. 486.

§ *Item.*

|| *Lancet.* March 21, 1857; p. 290.

¶ Paget: *Op. Cit.*

of multitudinous secondary deposits of the same black colour in the cellular tissue of the body, or of its internal organs.

When a cutaneous wart degenerates, if it is of a pinkish colour, the first indication of change in its character is perhaps evidenced in the discovery of black streaks running across its free surface, or darkening the imbricated margins of the growth, as it rests sessile on the part to which it is attached.

Their changes are singularly devoid of pain, and indeed effect no apparent alteration in the hitherto harmless growth, beyond that which the eye detects in the colour.

In the eye. The globe becomes distended by the morbid growth, which first locates itself between the choroid and the retina. In the earlier stage a dark livid colour is presented, and after a time, when the tunics, by pressure, have become absorbed or ruptured, a fungous mass of the characteristic sooty blackness pushes its way outwards.

The further progress of the disease in this situation is manifested by the discharge of black fluids, and by the breaking-off of masses of the protruding fungus. Rarely, do the neighbouring glands become affected, but secondary deposits abound in their customary haunts.

Unlike the development of cutaneous melanotic cancer, the growth of that of the eye is from first to last accompanied by severe pain. This is, however, owing to the unyielding nature of the parts, and not to any difference between the characteristics of the disease in the skin and the eye.

Mr. Wardrop* has recorded an instance in which, in a subject, aged forty, a portion of the conjunctiva covering the nasal side of the sclerotic was converted into a dark coloured mass, precisely the shade of Indian ink. A few instances had come under his notice of melanosis affecting the conjunctiva.

The instance in the lower jaw is recorded by Müller† as having been removed from that part by M. V. Graefe. The tumour was a large lobulated one, and required the separation of a large portion of the bone. Its examination displayed cells containing pigment granules. Some of the cells were of a paleish yellow colour, others darker, whilst the interior of others was stained dark brown by the contained pigment.

Mr. Stanley,‡ after referring to the preceding case, remarks: "Melanosis in bone has very rarely occurred as a primary disease; its general, and perhaps invariable, character has been that of a secondary disease, manifesting itself in instances where there had been melanotic deposits in some of the soft structures, but more especially in the eye and in the skin."

* *Lancet*; vol. xi, p. 87.

† *Essay on Cancer*; p. 56; translated by West. London, 1840.

‡ *Treatise on Diseases of the Bones*. London, 1849; p. 257.

In rare instances, the subcutaneous tissue is the locality where melanotic cancer first displays itself.

It will here appear as an isolated spherical nodule, the black or blueish black colour of which is visible beneath the skin. These solitary nodules may be very numerous, or only a single one may be detected. They may vary in size, from a swan shot to a hazel nut. They are moveable, and are apparently contained in a kind of cyst, derived from the cellular tissue in the midst of which they are placed.

By degrees the skin covering them becomes absorbed, and at length yielding, the black tubercle starts outwardly, loses its spherical character, becomes flattened, and finally ulcerates and discharges a peculiar secretion, devoid of smell.

The subcutaneous tissue, or cellular membrane, is, however, very frequently the seat of the secondary growths of this disease.

The occurrence of primary melanotic cancer in the rectum has only recently been recorded, in a patient under the care of Mr. Moore, of the Middlesex Hospital.*

“ Thomas M——, aged 65, was a patient in this hospital in May, 1855, with disease of the anus of upwards of two years. He had previously been an inmate of other hospitals, including the Cancer Hospital, where he remained nine months. At this period he had a black fungoid growth, situated at the right edge of the sphincter ani, in an ulcerated condition, and which bled freely. His health was, moreover, very bad ; and he had given up all employment for nearly a year. At this time the disease did not extend far into the bowel, and it was excised by Mr. Moore on the 11th of May, a large portion of the external sphincter being removed. This was followed by recovery, with perfect control over the bowel. He remained tolerably well for upwards of a year, but began to suffer from a sensation of heat and bearing-down in the middle of 1856 ; and as these symptoms increased, he again became a patient, on the 15th December last, under Mr. Moore’s care. The rectum is now affected higher up, with no external manifestation of the disease.”

When last seen, this patient’s hair, eyebrows, and whiskers were perfectly white, his debility extreme ; and there was every evidence, from his general appearance, of the disease extending itself elsewhere.

As a secondary deposit, melanotic cancer most usually presents itself under three forms.

1. It is deposited in the substance of an organ in the shape of tubercles, either partially encysted, or altogether devoid of any trace of such covering. These tubercles vary in size from that of the smallest granule to that of a considerable tumour. In colour, these are generally intensely black, but sometimes they are composed of a mixture of brain-like

* *Lancet*; p. 200.

cancer with the melanotic, which gives a variegated aspect to their appearance. In the cellular membrane, around internal organs, the disease assumes the character as described to belong to the primary melanotic tubercle of the subcutaneous cellular membrane.

2. The surfaces of organs appear, as it were, streaked, with the deposit running in lines of varying thickness, and always abruptly defined from the adjacent natural colour of the part. At other times it appears as if sprinkled in spots, or laid on in a thin layer: in these instances the colour is always black.

3. It is found in a liquid state: some of the tubera, above described, are sometimes partially fluid in their interiors. This condition is owing to the softening and breaking up of their contents, and not to the deposit of the melanotic matter in a fluid form: more frequently the consistence is like that of black paste or cream.

The melanotic matter is very rarely encysted; and if it is, the cyst is scarcely a real one, being formed simply by the adjacent cellular membrane. The melanotic tubera, seen in the interior of the liver and other organs, are hardly ever encysted, the masses being deposited in the midst of the natural structure of the part, and can be readily separated from it, even without tearing, being capable, as it were, of enucleation.

This, so called, cyst of melanosis, in masses, is of very slender texture, and has never been observed to be formed of fibrous, cartilaginous, or osseous materials. By the exterior surfaces it adheres lightly to the parts in which it lies embedded. By its interior it is in contact with the melanotic matter, and it sometimes sends in prolongations so as to subdivide it into lobules. This condition is very admirably shown by Cruveilhier,* in the illustration which he gives of such a tubercle subdivided on the surface of the heart and on the posterior extremity of a rib.

The finest injection of Breschet failed to detect any vessels ramifying in the interior of these masses. Their consistence varies, being sometimes as soft as tallow, and at other times partaking more of the firmness of glandular structure.

In colour, melanosis has many shades. In its primary form on the skin it is almost always brownish, varying perhaps from a yellowish brown to what is known as a bistre-brown. Later, the brown shade assumes every intensity of black. Sometimes, especially in the alterations in warts, the first change is of a slate colour.

In the eye, it is at first livid, afterwards of a sooty blackness.

In the internal organs it is seen of a blueish black, or a raven black, rarely brownish, except in the liver. The black colour, too, will stain white paper like Indian ink.

* *Anat. Pathol.*; liv. xix, pl. iv, figs. 1 and 3.

There is hardly any tissue of the body, in which, in some one or other of the previously described forms, melanotic cancer has not been found.

Mr. Coote* states that the cornea, synovial membranes, tendons, and aponeurotic expansions, are the only textures of the body which have not been found affected. My experience leads me to the belief that this is so in regard to the first three, and as far as we yet know upon the subject —absolutely so, and generally so, in regard to the last, as I am only acquainted with a single instance in which I think that an exception can be established.

To the list of unaffected textures must also be added the articular cartilages; and I believe, also, the tongue; for I am unacquainted with a single instance in which this organ has been found diseased.

In the liver, melanosis is believed by some authors to be comparatively rare. This opinion is entertained by Hope,† Lebert,‡ and other authorities. I am inclined to think, however, that dissection has as frequently found the liver the seat of melanosis as the other parenchymatous organs; the relative order, however, in which the internal parts are found the seats of the disease, I shall more particularly refer to subsequently.

When the liver is diseased by melanosis, it is generally enormously increased in size. In a case of Mr. Lawrence's,§ it weighed seventeen pounds and a half; whilst in another, quoted by Andral,|| from M. Chomel, in the third volume of the *Nouveau Journal de Medicine*, it weighed fourteen pounds, seven ounces, French measure. In Dr. Crampton's¶ patient it weighed nineteen pounds. In Mr. Fawdington's** case it was four times, and in the instance observed by myself it was three times, the natural size.

The deposits assume the shape of numerous tubera of all sizes. They are rarely single, the whole organ being generally studded with them of all sizes, from the smallest grains, to tumours as large as a hen's egg, or even as the fist. They are visible in the midst of the natural liver structure in all directions, perfectly isolated, and most frequently without any appearance whatever of being contained in a cyst. In colour, the masses vary from the deepest black to shades of a less intense colour. Sometimes they assume a brownish tint. The tubera that are near the surface of the organ elevate the peritoneal coat so as to be visible through it, constituting an irregular nodulated aspect throughout.

There never appears to be any general infiltration of the hepatic tex-

* *Op. Cit.*; p. 1051.

† *Morbid Anatomy*. London, 1834; p. 53.

‡ *Traité D'Anatomie Pathologique*. Paris, 1855; p. 314.

§ *London Medical Gazette*. October, 1845; p. 963.

|| *Op. Cit.*; p. 575.

¶ *Dublin Medical Transactions*; vol. i, 1830; p. 23.

** *Op. Cit.*; p. 17.

ture by these masses; it rather yields, as it were, and the diseased material is inserted between. Even its colour does not change to any more considerable extent than to assume a somewhat duskier hue. Sometimes, however, the liver is more tender and lacerable, in situations where these deposits most abound, and where the black matter becomes diffused, the intermediate texture between the tubera obtains a melanotic character, and the entire texture of the organ becomes then to a great extent disorganised.

The gall bladder, though imbedded in the midst of these growths, does not appear, in regard to its coats, to have presented any traces of the disease, nor has the quantity or quality of the bile been noticed to have undergone alteration.

The pancreas, the kidneys, the supra-renal capsules,* and the spleen, present likewise the deposits in more or less frequency—the latter organ less frequently than the others.

The visceral folds of the peritonæum, the mesentery, and the omentum, display very marked appearances. Between these, the black granules are deposited in large numbers, which gradually thin their enclosures as they increase. The disease is sometimes laid on the peritonæum in the shape of a coating, or in streaks, which can be sometimes almost wholly scraped off, so as to leave the membrane only slightly less transparent than natural. These granules, and tubercles of spheroidal shape, also rest abundantly in the sub-serous cellular membrane, around the renal and lateral spinal regions; also in the sub-serous or sub-mucous cellular tissue of the intestinal tube: but it appears doubtful whether the serous and mucous membranes are absolutely penetrated interstitially by the deposit.

The appendices epiploicæ have sometimes† been converted into a homogeneous solid mass of melanotic matter.

M. Lebert‡ records a case in which "melanic tumours" in great numbers were situated in the folds of the peritonæum, the genital organs, the liver, and the lungs. That portion of the peritonæum which corresponded to the sub-umbilical region was infiltrated by black matter: this was not in the condition of a tumour, but rather confounded with the substance of the serous membrane, which was a little thickened.

A very remarkable effect resulted from the presence of melanotic tubercles in the interior of the intestinal tube, in the case of a patient recorded by Cruveilhier.§ In addition to there being melanotic tumours on the external surfaces of the bowels, a large number occupied the internal surface. These tumours were developed between the mucous

* *Dublin Journ. Med. Science*; vol. xxi, p. 130.

† R. Carswell: *Dictionary of Practical Medicine*; article, Melanosis.

‡ *Op. cit.*; p. 314.

§ *Anat. Pathol.*; liv. xix, p. 3.

and muscular tunics, they were enveloped by a kind of cyst, derived from the mucous covering, which, stretched by the weight of the tumour, elongated itself into a pedicle. Many of these tumours were sufficiently large to interrupt the passage of the faeces, and had occasioned an invagination of that part of the intestine from which they arose, in that place immediately below. Obstinate constipation was present for some time before death in this case.

There is a peculiarity about the deposit of melanosis, which is very frequently observed in the serous membranes—the disposition it has to become pedicled; not only is this frequently seen in the peritonæum, but also in the pleura. The growths hang down like polypi, and are invested by a covering, which is probably a prolongation of the membrane beneath which they are situated.

Breschet* observed melanosis in the uterus. In the case of Rachel Bruce, Sir A. Halliday† states, that black matter was found irregularly deposited in spots beneath the peritonæal covering. When cut into, their substance was uniformly black; in addition, several distinct cysts or cavities were observed, which poured out a black liquid when opened.

In Mr. Coote's‡ report of the *post mortem* of Mr. Lawrence's patient, "the ovaries were found greatly enlarged, and converted into irregular lobulated masses, about eight inches in length, which retained no trace of natural structure; each of these masses consisted of a thin but dense cyst, filled with melanotic structure of soft consistence, and of the deepest black colour."

"Some minute black spots were seen upon the mucous membrane of the vagina, near the os tineæ."

Melanosis, according to Mr. Curling,§ has been observed in the testicle in only a few instances.

In the case of melanosis of the hand, recorded by M. Cruveilhier,|| the right testicle contained a very small tubercle, and the left contained one as large as a filbert. The left half of the corpus cavernosum penis contained one as large as a pigeon's egg. Mr. Stanley,¶ in St. Bartholomew's, in 1848, removed the right testicle from a patient, *at* 38. "The section of the testis presented the ordinary appearance of soft cancer, and was of a pale grey colour; interspersed in it, however, were several firmer masses, about the size of large peas, which were quite black." These dark portions, on microscopic examination, were

* *Op. Cit.*; p. 11.

† *London Medical Repository*; p. 203; 1823. The patient, Rachel Bruce, whose case is described by Sir A. Halliday, was under the care of Dr. Alison, at the Royal Infirmary, Edinburgh.

‡ *Op. Cit.*; p. 963.

§ *On Diseases of the Testis*; second edition, 1856; p. 315.

|| *Anat. Pathol.*, xix liv.; p. 2.

¶ *Med. Times and Gazette*; May 21, 1853; p. 524.

found to contain the peculiar corpuscles of melanotic matter, in addition to the usual constituents of medullary cancer.

In the lungs, the melanotic cancerous tubercles and stains are not unfrequently met with in connexion with the presence of the disease in other parts of the body, but care must be taken to distinguish between these and the black pigment, so constantly met with in the lungs and bronchial glands of adults generally; and especially in those of persons engaged in the working of coal mines; and between, also, that chronic black induration of the lungs—the *Phthisie avec Melanose* of Bayle.*

As observed in these organs, the black tubercles, of varying sizes, are found located generally beneath the costal and pulmonary pleurae, lying in the sub-serous tissue; also, in the pulmonary texture itself, inserted in the same manner as in the hepatic. They have been seen likewise as clusters, attached by a slight pedicle to the pleura; or this membrane has presented the characteristic streaking of the disease. In the cellular membrane of the mediastina, the masses have been recognised in large quantities, as well as in the intercostal spaces.

Many writers were in the habit of describing all black discolourations, from whatever source arising, under the general designation of melanosis. This was manifestly calculated to lead to erroneous views, regarding the nature of true or malignant melanosis, as it confounded with its secondary deposit the appearances so frequently observed in the lungs from the introduction of carbonaceous matter, or from the stagnation of the blood in the capillaries. These forms were most properly classed under the head of "Spurious Melanosis," by Dr. Carswell.† The universality of the colour, in the first instance, and the absence of a globular arrangement, in the character of the deposit, together with the general hardness of the lung tissue—immediately adjacent to it, in the second, suffice to distinguish either from the isolated rounded tubercle of melanotic cancer. In addition, these spurious forms are never observed to form pedicled or grape-like masses.‡

The heart has repeatedly exhibited melanotic cancer. Thus its surface may be seen sprinkled with a series of black spots, situated beneath its investing membrane (plate iii).

In a case of Mr. Lawrence's,§ there were numerous black tumours upon the outer and inner surface; and in the muscular substance of the heart, two of considerable size projected into the cavity of the left ventricle.

Andral|| mentions having observed a patch of a deep black colour as

* *Recherches sur la Phthisie Pulmonaire.* Paris, 1810; p. 28.

† *Op. Cit.*—*Melanoma.*

‡ For an elaborate essay *On the Deposition of Black Matter in the Lungs*, by W. Thompson, M.D., see *Med. Chir. Trans.*; vol. xx, p. 230; also vol. xxi, p. 340.

§ *Op. Cit.*; p. 963.

|| *Op. Cit.*; p. 563.

large as a two-franc piece, on the external aspect of the heart, which, on dissection, he found situated between the fleshy substance and the pericardium—that is, in the sub-serous cellular tissue.

Cruveilhier's* illustration of the deposit of melanotic tubercles in the heart is most complete. Not only were they observed superficially on the external surface, beneath the pericardium, on both ventricular and auricular divisions, but also within; upraising the lining membrane of the cavities, and being protuberant between and upon the muscular columns, like black currants. Some few were in the muscular substance of the organ itself.

Comparatively rarely is the brain affected by melanotic deposit. The best recorded instance that I am aware of is mentioned by Dr. Carswell.† An old man, between seventy and eighty, was brought to the Hotel Dieu, in Paris, in a state of incomplete paralysis. He died soon after admission. On examination, deep brown or black tumours were found in various organs. In the brain, in either hemisphere, was found a deep brown tumour, as large as a hen's egg. These, though partly melanotic, were also composed of erectile tissue—the blood vessels of the pia mater passing into them, and constituting the greater part of their bulk. "The cortical substance of the brain," however, "contained three or four melanotic tumours, rather larger than hemp-seed."

More frequently the small vessels of the brain are found to contain the dark melanotic matter. This was found to be the case in the examination of the veins traversing the semi-melanotic tumours above referred to.

Sir A. Halliday,‡ also, notices a somewhat similar fact. He says, "The substance of the brain was natural; but several minute studs of dark matter were deposited in the course of the ramifications of the small vessels on the membranes covering the base of the brain and the choroid plexus."

Dr. Hooper,§ in his description of certain tubercles of the brain, speaks of the "black tubercle"—i. e., melanotic cancerous tubercle. This, he states, "is as dark as soot, very soft and pulpy: it is found in the cortical and medullary substance, and of various sizes, but mostly as small as a lentil."

He further adds a most valuable illustration of this form of tubercle in plate xii, fig. 2, where a portion of the posterior part of the right hemisphere of the brain is represented; the whole of which is studded with black tubercles. One of these tubercles was of the size of a hazel nut, whilst others were smaller.

* *Pathol. Anat.*; Pl. xix.

† *Illustrations of the Elementary Forms of Disease—Melanoma.*

‡ *Op. Cit.*; p. 203.

§ *The Morbid Anatomy of the Human Brain.* R. Hooper, M.D. London, 1826; p. 29.

"This species of tubercle," he remarks, "appears, at first sight, as if it were merely a coagulum of very dark venous blood. It is, however, an organised mass, of a pulpy or gelatinous consistence, which can be easily broken down, when it looks like the pigmentum nigrum of the eye, or soft Indian ink. It is surrounded by a very thin delicate membrane. Its structure is cellular; and it can easily be turned out of the brain, to which it adheres loosely, except at one point, where the vessels enter by which it is formed and nourished."

In a foot note, Dr. Hooper states, that the subject from which the illustration above described was taken, had melanotic cancer in almost every part of the body both externally and internally. It was found in the liver, lungs, heart, kidneys, breasts, and axillary glands.

Mr. Wardrop* has recorded a remarkable instance of what he terms "Fungus Melanodes" of the brain.

The patient, a farmer, had undergone extirpation of the right eye three years previously. The operation involved the removal of a vast growth, of nearly ten years' duration, from the right orbit. The tumour consisted of a dark brown or blackish substance, rather firmer than brain, but in some parts so soft, as readily to be washed away with water.

Before death, for some months, the patient became paralysed. The following appearances in the brain were recorded: "On cutting into the left hemisphere, on a plane with the corpus callosum, a large dark sanguineous coloured mass presented itself, which at first had the appearance of coagulated blood; but on examining it minutely, it was found to be of a firm consistence, having numerous small vessels passing through its substance. This mass seemed to have no connexion with the surrounding brain, which was quite natural, and formed a sort of bed for it. By immersion in water a quantity of blood was extracted, and the mass, which remained, was of a dark brown colour, consisting of very loose cellular tissue. In the substance of the right hemisphere there were also several dark-coloured masses, of the size of a pigeon's egg, very similar in texture to that found on the left side. The ventricles contained a small quantity of serum, and the choroid plexus was of an unusually pale colour. The cerebellum appeared natural. The optic nerve on the right side, from its bifurcation to the orbit, was much wasted, having no medullary matter, and seemed to consist only of neurilemma. At the extremity of the nerve, where it had been divided during the extirpation of the eye, there was a hard tumour, of the size of a small nut, of a black granular appearance."

In a patient under the care of Dr. Alderson, in St. Mary's Hospital,† January 8th, 1855, in addition to numerous other illustrations of secondary melanotic deposits, "the left lobe of the cerebellum was displaced by

* *Lancet*; vol. xi, p. 88.

† *Lancet*; vol. i; 1855: p. 319.

an encysted mass larger than a walnut, and was perfectly separable from the cerebral tissue, which presented in its neighbourhood its natural appearance and consistence."

On the other hand, in a man, *aet. 50*, who died of apoplexy, Lobstein* found the cerebral substance in the optic thalamus of the left side converted into black matter, which penetrated inwards for two lines.

Andral's† experience led him to state that melanosis had never been observed in the brain.

In regard to the nervous system generally, it does not appear that the nerve structure has ever been found penetrated with melanotic cancer. Branches of nerves may be seen passing so as to be surrounded by the disease; but none of their filaments can be traced into the contiguous tubercles, nor have they been found altered either in colour or texture.

The only exception I am aware of is perhaps in the orbit, where not unfrequently, when the disease is situated in the eye, the optic nerve will become converted into a mass of melanotic appearance, and will expand within the skull into a far larger growth, so as to prop up the under surface of the brain. This fact has been observed by Lawrence and others.

It is very common to observe the cut end of the optic nerve of a black colour in the *post mortem* examination of patients who have died after operations for the extirpation of melanosis of the eye.

Melanotic cancer is very frequently found deposited in the cellular and adipose tissue around the breasts. I am not aware of its having been noticed in the mammary gland as a primary affection.

Velpeau‡ says, "In the mamma, I have seen but two cases of melanosis; and the two females who were thus affected had the disease at the same time in different other regions of the body. In one of these it was the right breast which was thus affected, and the tumour, the size of a five-franc piece, was situate almost exclusively in the skin, was only two-fifths of an inch in thickness, was ulcerated at two points, and discharged a blackish ichor tolerably abundantly: in the other, the cancer, the size of a hazel nut, situated on the outside of the left nipple, was at the same time lobulated, and moreover everywhere solid. Both these patients died without operation, with a multitude of small melanotic tumours in the skin, in the glands of the neck, and in the viscera, all of which presented the same anatomical characters, and had the homogeneous section and black colour of the best marked melanotic cancer."

Even in this, the secondary affection of the mamma by melanotic cancer, it is questionable whether the disease is not deposited in the meshes of

* *Traité d'Anatomie Pathologique*; t. i, p. 460.

† *Op. Cit.*; p. 573.

‡ Velpeau: *Treatise on Diseases of the Breast*, translated by Mitchell Henry: Syd. Soc., 1856; p. 366.

the cellular membrane, binding the component parts of the gland together rather than in the gland itself.

The arteries between their middle and interior coats, have presented instances of the deposit of melanotic masses. Similar instances have not been observed in regard to the veins.

Breschet* has, however, described the presence of a melanotic fluid in the small vessels of the mucous and serous membranes affected by melanosis, of the same character as that observed by Sir A. Halliday in the small vessels of the pia mater, previously alluded to.

In the thyroid gland, M. Alibert† has observed this disease; M. Laennec,‡ also, found it affected by melanotic tumours.

The lymphatic glands generally are very prone to melanotic degeneration. The inguinal and lumbar glands, and the mesenteric, are very frequently found implicated from neighbouring growths. The lumbar glands will sometimes compress the vena cava, so as to cause anasarca of the extremities, in the later stages of the disease. Sometimes, a number of these glands, when diseased and enlarged, coalesce, and form a considerable tumour, possessing all the characters of melanosis.

It does not appear, however, that where the disease affects the eye, it is found to propagate itself in the adjacent gland, as when located in other places.

Melanotic tumours in the muscles are not really met with. In the instances in which they have been said to be so situated, there is little doubt but that they occupied the intermuscular spaces, or the cellular intervals between the muscular fibres.

In the fibrous tissues, though very rarely, melanotic deposits have been observed. This was Breschet's§ experience, who states that it was especially observed in the fibrous tissue covering the muscles.

Dr. Norris|| observed melanotic tubera, from the size of a pin's head to that of a pea, in the fascia, covering the temporal muscles. The dura mater was also studded with them.

I have myself witnessed the dura mater stained apparently from contact with the contiguous deposit on the internal surface of the cranium, and the same condition was observed by Sir A. Halliday; but it did not appear to me that the membrane derived its deposit from any other source than from the adjacent bone, as it was easily removed by scraping and washing, and no alteration of its structure was perceptible.

Cruveilhier¶ records a case in which a single melanotic tumour was

* *Op. Cit.*; p. 12.

† *Nosologie Naturelle*; tom. 1.

‡ *Treatise on Diseases of the Chest*. London, 1829; p. 396.

§ *Op. Cit.*; p. 11.

|| *Op. Cit.*; p. 565.

¶ *Op. Cit.*; liv. xix, p. 3.

situated in the centre of the attachment of the deltoid to the humerus. This was apparently also the primary seat of the disease.

According to Andral,* the bones have been seldom found affected with melanosis: when, however, they have been affected they have displayed very peculiar characteristics. They appear to undergo simply an alteration in colour; and beyond becoming more brittle, there is no evidence of thickening, of absorption, or of ulceration. Stains of a blackish character are seen on some parts beneath the periosteum, which do not penetrate beyond the surface. Sometimes the entire thickness of a bone will present a homogeneous blackening or infiltration, and occasionally the intermediate space between osseous tables—*e. g.*, the diploë of the skull contains the disease, in the shape of disseminated masses or nodules.

The case recorded by Sir A. Halliday† affords so complete an illustration of the disease in the bones, that I shall give his own description. “On removing the sternum and skull-cap, it was observed that the whole texture of the sternum and the anterior portion of the ribs, and great part of the parietal and occipital bones, were blackened and more brittle, and of a softer consistence than natural; but without enlargement or evident alteration, or thickening of the periosteum. Beneath the pericranium, black matter was deposited in the form of encysted tumours; but when these were raised from the bone, the black matter was found to enter by fine projections into foramina in the bone, without the intervention of any cyst. The pericranium was easily separable from the subjacent bands, but was otherwise natural. The whole inner table of the skull, when removed from the dura mater, was of a darker hue than natural; and in some places where the black matter appeared to proceed from the bone to the subjacent membrane, the latter had patches corresponding to those on the inner table, and which could be partially removed by scraping. At these points the bone was evidently darker and more perforated than in other parts.”

In the plate which accompanies the report, there is figured “a transverse portion of the sternum, sawn on both sides, in order to show the black colour of the bone, and with the periosteum, which is also considerably blackened, attached to both its anterior and posterior aspects.”

The subject from whom the preceding facts were obtained was a female, *at.* 42, the mother of ten children, and who had an illness, apparently arising from cold, of only a few weeks' duration, before her admission into the Royal Infirmary, Edinburgh. Her symptoms whilst in the hospital, were mainly referable to general debility. A fortnight preceding death, several small tumours, slightly painful, were observed immediately beneath the integuments of the abdomen. She died in about a month after her admission.

* *Op. Cit.*; p. 571. † *Op. Cit.*; p. 203.

Messrs. Cullen and Carswell* found the substance of the rib completely black, as was also the sternal third of the clavicle upon the left side; but these bones were in no other way altered from their natural state. The patient who presented these changes was fifty-one years of age, and had undergone the operation of extirpation of the right eye for melanotic disease, twelve months previously. He died after a short illness, commencing with symptoms of pleurisy; and the real nature of his malady was unsuspected previous to the *post mortem* investigation.

I am aware of a single instance only in which the osseous texture has disappeared in consequence of the pressure and progress of a melanotic deposit. A woman, about sixty years of age, was received into the Hospital Salpêtrière,† suffering with cancer of the labia interna. The inguinal glands on either side became affected, and in a little while she died in a state of marasmus. The tumour in the nymphæ was seirrhus, but its substance was streaked with melanotic deposit. In addition to other evidences of melanotic formations, the posterior extremity of a great number of the ribs was in a state of melanotic eaneerous degeneration. The black eaneerous matter was deposited in the cells of the spongy tissue. It had destroyed in great part the rib, of which scarcely any traces remained. A single rib had undergone the same alteration in the middle part of its length. The vertebrae were sound. The tumour which effected the above described degeneration was traversed in its interior by fibrous lamellæ, which subdivided it into numerous lobules.

Lobstein‡ records an instance in which the left femur was affected, coincidently with numerous melanotic deposits elsewhere. One part of the spongy substance of the inferior third of the femur was infiltrated with black matter. Some of the material was adherent to the periosteum, whilst portions were also placed between it and the bone itself.

I am indebted to the courtesy of Mr. Preseott Hewett for the following aeeount, taken from the eatalogue of St. George's Hospital Museum.

Seetions of the head and shaft of the humerus, the eaneellous strueture of whieh is filled with melanotic matter diffused throughout, only some few minute points being in the compact strueture of the shaft. From a middle-aged woman, who had been operated upon for a melanotic tumour, some time previously, the disease returning in various parts of the body. The whole skin resembled that of a person who had, for a long time, taken nitrate of silver, and melanotic matter was found to be in the rete mucosum and in the dermis. The thoraeie and abdominal viscera were affected with a similar deposit. In the spleen and in the ovary, it was in the shape of tubercles; in the other organs, it was

* *Med. Chir. Trans. of Edinburgh*; vol. i, p. 273.

† Cruveilhier: *Anat. Path.*; liv. xix, p. 2.

‡ *Op. Cit.*; p. 461.

diffused throughout various parts of their structure. Large quantities of serum and lymph, which were found in the pleurae and peritonæum, were of a dark brown colour."

In a female, *æt.* 23, from whom the left eye had been extirpated for melanotic cancer, by Mr. Lawrence,* the following appearances were observed in the osseous system, on *post mortem* examination by Mr. Coote. "There were two or three small tumours in the scalp; the skull-cap thicker and heavier than natural; contained in the diploe, similar deposits, each about the size of a large pea. Black matter was found about the optic foramen, in the lesser alæ of the sphenoid bone, and along the inferior margin of the left orbit. The bony substance was not swelled, nor apparently altered in structure, in the situation of these deposits."

"Black matter was deposited in the cancellous texture of some of the left ribs; a mass of black matter, the size of a musket bullet, was lodged upon the anterior surface of the dorsal vertebræ."

It is Mr. Stanley's† opinion, that "The deposit of melanotic matter in bone, simply stains it, and produces no other effect; no inflammatory action is set up in the bone, and none of the organic changes in it ensue, which are consequent on other morbid deposits in the osseous tissue."

In regard to the relative frequency with which the internal organs and the tissues generally have been found affected—of sixty cases of melanosis which I have collected, but thirty-five have the *post mortem* appearances recorded.

In one of these there are no particulars given, but almost every organ is said to be affected.

In two others, the thorax and abdomen were not examined. This leaves thirty-three cases in which the details are given. In these:

The liver was found diseased	in	18	instances
The lungs	"	17	"
The serous membranes, including	{	pleura . . .	
		pericardium . . .	" 14 "
		peritonænum . . .	
Cellular membrane	{	α , subcutaneous of trunk . . .	
		and limbs	10 "
		β , of the cavities	5 "
The heart	"	9	"
The brain	"	7	"
The pancreas	"	7	"
The kidneys	"	7	"
Supra-renal capsules	"	1	"
The spleen	"	3	"
The genital organs	{	ovaries and testes	4 "
		penis	1 "
			5 "

* *Op. cit.*; p. 963. † *Op. cit.*; p. 258

The lymphatic glands	were found diseased . . .	in 11 instances.
The thyroid gland	",	1 "
Fibrous membranes	",	1 "
	{ cranium 5	
	{ rib 4	
The osseous system	{ clavicle 1	13 "
	{ femur 1	
	{ antrum 1	
	{ sternum 1	

Seven cases were examples of melanosis and encephaloid; two cases of melanosis and scirrhus; one case of melanosis and scirrhus combined, and of encephaloid alone.

Amongst the cases from which the foregoing table has been compiled, there was one in which the liver alone of all the internal organs presented evidences of secondary deposit. In another, where the brain was also implicated, the liver was again the only other organ that was involved. In a third, where the primary disease was located in the eye, no melanotic deposit was discoverable in any other part of the body; but the liver was enormously enlarged and of soft texture. These facts, and the fact of the liver being at the head of the list, display in a marked degree its liability to become the seat of secondary melanosis.*

As to the question of sex, out of sixty cases of melanosis, thirty-three were males, and twenty-seven females.

Of the same number in regard to age and sex:

Age not stated in	. . . . .	3
Under ten	males 2; females 2	4
Between ten and twenty	female 1	1
", twenty and thirty	males 2; females 2	4
", thirty and forty	males 10; females 2	12
", forty and fifty	males 6; females 8	14
", fifty and sixty	males 7; females 6	13
Above sixty	males 5; females 4	9
		—
		60

Of the same number as to its primary seat, the disease was situated in the

Skin or subcutaneous tissue, in	males 17; females 17	34
Eye	males 11; females 7	18
Rectum	male	1
Prostate gland		1
Testis		1
Not stated		5
		—
		60

* Speaking of cancer melanodes, Rokitansky remarks: "Even when attacking all or several organs simultaneously, it may grow inordinately in a single one, or more than one; in which case, the liver is almost always found to be the organ of predilection."—*Manual of Pathological Anatomy*, vol. i, p. 280.

Of the thirty-four in the skin or subcutaneous tissue, fifteen had developed in or near a congenital mole, wart, or mark.

Melanosis will, doubtless, attack all ages; but there can be no question but that it is a disease of adult, middle-aged, and even advanced life, rather than of childhood.

The earliest instance that I am aware of, is recorded by Mr. Wardrop.* The patient, a little girl, was two years of age at the access of the disease in the left eye. "The humours of the eye were converted into a black gelatinous substance."

Mr. Haneock,† in the Charing Cross Hospital, November, 1852, extirpated the left eye in a girl *at* five, in whom the disease generally and microscopically presented the evidences of melanosis; and who could not have been more than three at the access of the disease.

In a patient, a girl *at* thirteen, under the care of Mr. Lloyd, of St. Bartholomew's, the disease appeared when she was three. My friend, Mr. Paget, has given me the following account of his examination of the parts removed, which confirms the impression on my mind left by reading the case‡, that it was not one of malignant melanosis. "It had all the general appearance of melanosis, and was extremely dark, with mingled shades of black and brown in all its cut surfaces. Its colouring molecules were intimately infiltrated in the structures of the outgrowth: these structures resembling those of cutis, and with the molecules, were nuclei, containing or bearing in their surfaces similar pigmentary particles. I regarded the case as one of melanotic infiltration of a cutaneous outgrowth; but the length of its duration, and the absence of well marked cancer cells or nuclei, amongst its component structures, may suggest a doubt whether it were a certain instance of melanotic cancer."

Of the causes which may have induced the onset of melanosis we know little or nothing. In by far the majority of instances, no known cause can be assigned. In others a blow, especially on the eye, has given a date to the first recollection of the possible commencement.

As to hereditary transmission, I am acquainted with but one instance in which the evidence seems trustworthy on this point. In Dr. Norris'§ case the following is recorded. "It is remarkable," speaking of the patient, "that this gentleman's father, about thirty years ago, died of a similar disease. A surgeon of this town attended him, and he informed me that a number of small tumours appeared between the shoulders, which were severely cauterized, soon after which death took place." Not only had Dr. Norris' patient and his children many moles on various parts of their bodies, but his father and brothers also had many of them.

* *Op. Cit.*; p. 59.

† *Lancet*; vol. xi, 1852; p. 587.

‡ *Med. Times and Gazette*, May 21, 1853; p. 523.

§ *Op. Cit.*

The Doctor adds, "The youngest son has one of these marks exactly in the same place where the disease in his father first manifested itself.

I shall now proceed to narrate two cases of melanosis which have come under my own observation.

CASE 1. H. W. J., *at.* 23, single, a cooper by trade, with dark hair and sallow complexion, was admitted, under my care, into the General Hospital, Birmingham, on the 16th of June, 1854, with a coloured warty growth upon the integuments, covering the lumbar portion of the spine.

History. About two years since, he discovered by chance, the presence of a wart, about the size of his little finger nail, in the hollow of his back, which had, no doubt, been there from birth. It was at that time free from pain; but in the course of a few months, some irritation having been recognised by the friction of his apron strings, it discharged, and became a source of annoying itching.

In the month of November, 1852, he consulted a medical gentleman at Dudley, who removed the growth by the knife—slicing it off on a level with the adjacent skin. Any tendency to reproduction was kept down by the application of caustic; and at the end of six weeks the wound was healed.

Three months after this date it reappeared; and in the month of September, 1853, it had attained the size of a crown piece. Its removal was now accomplished by ligature; the healing process being completed in the space of four weeks.

Two months subsequently it again appeared, its growth being uninterfered with until his coming under my notice.

He tells me, that up to the age of twenty-one, he always enjoyed good health, when he contracted syphilis, in the shape of a sore on the frenum. He was not under regular treatment for this, but consulted a druggist. His gums were not made sore. From his birth, there have been present in various parts of his body, small patches of discolouration of the skin. He is not aware of any tendency to disease in his family.

Upon examination, I found a warty looking structure, situated in the middle line of the back, over the first lumbar spine. It was about two inches in breadth, by about the same in length. Its surface was flattened, irregularly warty, of a pink hue generally, but with some slate-coloured portions intermingling themselves in streaks. It was closely adherent to the parts beneath; but its edges were free, and overlapped the sound parts adjacent, for half an inch. The aspect of the inferior surface of this free margin was of an inky character. There was no ulceration, but an irritating moisture arising. He had been in the habit of applying a simple cerate on soft linen to prevent friction. Some distance above, I also noticed a small wart as big as a pea, of a brown colour.

On the 28th of June, I excised the disease, cutting off as much integument as was covered by it, together with the fascia from the muscle beneath.

The part healed slowly by granulation, and at the end of six weeks he was discharged. His general health at this period was good, and he had gained flesh since his residence in the hospital; his complexion, however, looked muddy, and was generally dark coloured.

Three months after his discharge he noticed the appearance of two or three black nodules beneath the skin; one especially, situated on the right leg, attracted his attention, whilst the rest were scattered about in various parts of the trunk and limbs; they were none of them larger than black currants.

In January, 1855, I saw him, and examined him. I found a small tubercle, moderately hard, beneath the integument of the leg, over the head of the right tibia. Its dark colour was discernible through the thinned integuments. Near it, was a second, smaller in size. There were others similar in various situations. The cicatrix of the wound was sound. I recommended him to go into the country, and to leave the tumours to take their own course.

In July, he saw me again. In the interval some of the tubercles had been stimulated to ulceration under the advice of a quack.

His appearance is now pale and cachetic, he complains of pain in the left side, in the loins, and in the shoulders, and he has lost flesh. His back and legs are covered by a papular syphilitic eruption.

There are six of the tumours which are as large as a shilling piece, and which have been especially the object of treatment: one of these is situated on the inner side of the head of the right tibia, one on the calf of the same leg, one between the thigh and side of the scrotum, one on the thigh, one on the left forearm, and one over the right scapular spine. These have pressed their growth through the integument, their shape is circular, their surfaces are irregular, ulcerated and mammillated, their colour blueish, black, or deep brown, and they move freely in the subcutaneous tissue; they give rise to brown-coloured discharge, free from smell, and display no tendency to soften (plate i).

The earlier forms of these nodules are felt like peas beneath the skin. In some of these the covering integument is thinned, so as to show the pigment beneath, in others it is unaltered. They are very numerous in the subcutaneous tissue; even the cicatrix of the wound now covers a number of them, firmly seated in the parts beneath; it is, however, sound in itself, but at its upper margin a black streak is visible.

August 16th. By following accurately my directions as to rest, water dressing, and diet, the sores are easier. He, however, emaciates, and gets no sleep at night.

September 3rd. He called on me, and was evidently in more feeble

health. The tumours were much about the same, but increasing in number.

September 13th. I received a note requesting me to visit him in the country. I was unable to do so; but in my absence a medical friend saw him for me. He found him paralysed and comatose, with only a few hours to live. He died on the 14th.

The account I was enabled to obtain of his seizure was to the following effect :

On the 12th, his friends, on going to him in the morning, found that he had had a fit during the night, and that he had lost the use of his left arm and leg. His speech was unaffected. The evening of this day he was removed a distance of six miles, appearing low, and speaking seldom. On the 13th his respiration became difficult, and accompanied by loud mucous rattles. He was constantly sick, and the vomited fluids were of an intense grass green colour. These symptoms ushered in death.

I was not able to make the *post mortem* examination until four days after death. The body was rapidly decomposing, especially about the neck and shoulders. Thorax : each pleural cavity contained about a pint of bloody serum. The lungs were free from adhesions; their structure was generally engorged with blood, but nowhere were any melanotic deposits detected. There was no effusion into the pericardium. The heart was flabby, and contained scarcely any blood. Abdomen : there was no effusion into the cavity of the peritoneum. The stomach and intestines were distended, apparently with gas. Their cavities were not exposed. The liver, the spleen, the pancreas, and the kidneys, were natural. The lumbar glands were unaffected. The bladder was natural. Head : the coverings of the brain were natural. The brain itself was softened by decomposition. At its base, to the right side of the medulla oblongata, and breaking up the substance of the Pons, was an extravasation of blood, infiltrating the cerebral substance for the distance of an inch. There was no fluid in the ventricular cavities. There were no appearances of melanotic deposits in any parts within the cranium.

I dissected out a large gland from below Poupart's ligament, on the left side, which, together with two or three smaller ones in the vicinity, were diseased. On section, they all presented the appearances of medullary cancer and melanosis, their structure being partly white, and partly of the deepest black.

CASE 2. I proceed to the narration of the second case.

P. C., aged 53, a collier, married, a worn, pale-complexioned man, was admitted, under my care, into the General Hospital, Birmingham, on the 24th March, 1855, having a black patch of diseased structure on the right cheek.

History: he had always, within his recollection, a mole in this situation.

It had never occasioned him pain or annoyance until within three months of his admission. The first occasion of its doing so was after it had been accidentally wounded by a barber in shaving. After this it began to prick and shoot, and to increase slowly in dimensions. In earlier life he had been the subject of epileptic fits, but not for seventeen years had he suffered an attack. Though of delicate constitution, he had followed a laborious employment in the pits, and had encountered the hardships and accidents incidental to his occupation. He had always been temperate. His family are healthy, and there is no tendency to disease known amongst them. His wife informed me, that for some months past he had been losing flesh, and had been the subject of cough and feeble digestion.

Upon examination, the growth presented an irregular black tuberculated patch of warty structure, situated immediately over the right malar bone. It was about as large as a florin piece, moveable with the integument, with its limits accurately defined. Its surface was not ulcerated, nor was the neighbouring integument affected. Closely adjacent to its outer margin, and connected by a small intermediate portion, were two tubercles, of the size of peas, which partook of the characters of the larger one. The colour of these formations was coal black, the only exception to this being a slight variation in intensity in different parts (plate ii).

The submaxillary glands of the same side, were enlarged and hardened. There were no other tubercles or discolourations to be seen on his body.

In consultation with my colleagues, we determined that no operation was advisable.

On the 10th of April, sixteen days after admission, he died suddenly, almost without warning, and without any illness, save an increasing feebleness and some vomiting.

The body was examined twenty-four hours after death.

Head. On examining the skull cap, its internal surface was observed to be irregularly marked by melanotic deposit; the same condition was present in the floor of the cranium. The colour of this deposit was deep black, it was scarcely raised from the surface of the bone, and whilst, in some instances, it penetrated inwards, so as to stretch across the diploe to the external table, in others, it was readily removed by scraping, leaving the bone of its natural colour beneath. Thus it diffused itself in patches of irregular shapes and dimensions in all directions (plate iii). It was altogether situated beneath the pericranium. This membrane was stained by contact in some few places on its external aspect, but there was no thickening or other change apparent in its structure. The brain was natural. Thorax. The lungs contained many nodules of

melanosis. These were chiefly noticeable upon their posterior parts, and varied in size from a small pea to a cherry. They were circular in figure, intensely black in colour, and were situated mostly beneath the pleura, but were in the parenchyma of the organs as well. The lung structure around the deposits was perfectly natural, and was in immediate contact with them. The heart on its posterior aspect was sprinkled by jet black spots (plate iv). The melanotic matter constituting them was placed beneath the visceral pericardium. It showed itself towards the right of the septum ventriculorum, being scattered mainly over the surface of the left ventricle, just below the auriculo-ventricular furrow. It stretched over the space of an inch in length, and was at first separated into many small diffused points, of a greyish tint, and was finally gathered up into a large patch of a deep black colour. The cavities and the remaining parts of the viscera were natural.

Abdomen. The liver was a mass of melanotic deposit, three times its natural size; it extended itself downwards, and to the left side, encroaching on the neighbouring regions. The melanotic tubera were of all sizes, from the minutest speck or grain, to others as large as a pigeon's egg. They filled the organs in all directions, appearing to be inserted in the midst of the hepatic structure, which was more tawny in colour and more friable than natural. They did not appear to coalesce with one another, but were isolated by intervening liver tissue, which was in immediate contact with their external surfaces without the intervention of a cyst. On the anterior surface, the peritoneal covering was elevated into a series of undulations, caused by the upheaving nodules beneath. Beyond being thus raised, the membrane presented no appearance of thinning. On section, the tubera had a homogeneous aspect. Their consistence varied, and was generally somewhat firmer than tallow, and they had nowhere undergone any softening. Their colour was deep black or brown, and of every shade between these two. The spleen contained similar deposits, three or four in number, of the size of swan shot. The kidneys were similarly affected. The small intestines were sprinkled in a few places. The mesenteric glands were dark-coloured, and slightly enlarged. The general as well as the local effects of melanosis are fairly displayed in the preceding cases.

The constitution of the patient suffers by gradual diminution of the vital powers, rather than by the influence of accompanying fever or pain; a slow wasting of the physical capabilities, without the mental powers sharing in the otherwise general decay. Death, especially in the second instance, was scarcely a remove from the previously existing state of intense feebleness; and yet there were no evidences of the occupation of almost every important organ by abnormal products. These are in general fatal not so much from the local injury which they produce, as from their constitutional effects.

Take the first case as an illustration of this remark, and it will be found that in no internal organ was there evidence of secondary deposits, but the subcutaneous cellular membrane, from head to foot, was filled with them in every stage of growth; yet the cachexia was even more marked than in the second, where the great vital organs were absolutely filled with the disease, at the same time that the external cellular membrane presented hardly any traces.

The progress of the melanotic tubercle, in its course to the surface, was steadily in conformity with the peculiarities I have elsewhere described as belonging to it. In its subsequent career, the absence of pain, of purulent discharge, and of anything approaching to the separation of its tissue by sloughing, were maintained as its features to the last.

The following cases, some of which are narrated or completed for the first time, whilst others have been collected from various periodicals and from works containing observations relative to melanosis, will enable us to form some estimate regarding the average duration of the disease from first to last; also in regard to the duration of life after operations for the removal of the primary disease, together with the rate of recurrence in the cicatrix, and the appearance of secondary deposits beneath the skin.

CASE 1. A woman, *ætat* 41, under the care of Mr. Allan Burns. The left eye. Treatment by extirpation. Dissection: secondary deposit in antrum, liver, and above kidneys; there was reappearance in the orbit in the cut extremity of the optic nerve.—*Allan Burns on Head and Neck*, p. 349; also *Wardrop on Fungus Hæmatodes*, p. 74.

Duration: α , from first appearance to operation, "two years and a half;" β , from operation to death, "three months."

CASE 2. A man, *ætat* 59, under the care of Dr. Norris. A congenital mole, situated between umbilicus and pubes. Nine months previously to being seen, the skin around the mole became brownish, and from it a tumour gradually arose. Removed by knife. Six weeks subsequently, it reappeared in the cicatrix, together with secondary tubercles about the body. Dissection: secondary deposit in rib and in intestines; the mesenteric glands contained a fluid like tar; in liver, pancreas, and kidneys; in lungs and heart; in the skull cap; in the dura mater, and fascia covering the temporal muscle.—*Ed. Med. and Surg. Journal*; October, 1820; p. 562.

Duration: α , from first appearance to operation, "nine months;" β , from operation until death, about "twelve months."

CASE 3. A man, *ætat* 51, a shoemaker, under the care of Dr. Home, in the Royal Infirmary, Edinburgh, on the 18th of March, 1823. The right eye. In the spring of 1822 the eye was extirpated. After the operation the patient remained free from any painful feelings referable to that organ. Died April 1st, 1823, of an attack of pleurisy, melanosis

being unsuspected. Dissection: melanotic deposits, in lungs, on pleura, in heart, pericardium, beneath mucous membrane of bronchi; in serous membranes of abdomen, liver, spleen, kidneys. The deposit in the liver was partly white, and of a cerebriform character; also in the clavicle-rib and internal table of the skull.—*Trans. Med. Chir. Soc. of Edinburgh*; vol. i, p. 271.

Duration: from extirpation until death, "ten months."

CASE 4. A man, *ætat* 30, under the care of Mr. Wilson, at Manchester, January 30th, 1824. The left eye. Treatment, by extirpation, April 19th. Dissection: deposits, cellular membrane of trunk, in liver, pancreas, spleen, kidneys, peritonæum, pleuræ, lungs. There was no return in the orbit.—*Fawdington: case of melanosis*. London, 1826, 8vo.

Duration: α , from first appearance to operation, "nine months;" β , from operation until death, "six months and a half."

CASE 5. A man, *ætat* 29, a black, a native of Madagascar, under the care of Mr. A. Montgomery, in the Civil Government Hospital, Mauritius, July 8th, 1827. A small sore on the side of the left foot, formed eighteen months prior to his admission. This became a rough tuberculated growth resembling a cauliflower, of a deep livid colour, approaching to blue. Numerous mulberry tubercles about feet. Enlargement, generally, of glands, passing upwards towards groin, where they were much increased, and formed a considerable tumour.

August 6th. Treatment, by amputation below knee. The stump healed. Two months subsequently the gland in the groin sloughed, and numerous tubercles formed in the trunk and limbs beneath the skin. Died 23rd January, 1828. Dissection: the tumour in groin of a brain-like character, intermingled with masses of black pigment. Black tubercles in cellular membrane of pleura and peritonæum. In the liver. The heart's surface was completely covered by them, and its structure so completely changed, as to be scarcely recognised. The left lung was also melanotic.—*Lancet*, vol. ii, 1844; p. 280.

Duration: α , from first appearance to operation, "nineteen months;" β , operation until death, "five months and a half."

CASE 6. A male, *ætat* 46; a merchant's clerk; in the Hospital Beaujon, March 28th, 1829. The primary disease was situated on the palm and back of the hand. It had appeared as a blackish stain, like an erythema, without known cause, seven or eight years previously, and had made scarcely any progress for a year. The growth was then destroyed by caustic, and the application was renewed from time to time up to 1828. Severe lancinating pains were latterly experienced. By the application of an arsenical paste, the wound healed; but a tumour of a similar character appeared on the back of the hand, in the first inter-osseous space, and in a little while the first seat of the disease again ulcerated. Pain was again marked, and finally the hand was amputated, and he was discharged well in April, 1829.

In April, 1830, the patient reappeared covered with innumerable melanotic subcutaneous tubercles; cough, night sweats, emaciation, and diarrhoea, led to death in June, 1830. Dissection: melanotic tubercles on surface and in substance of lungs; some of those on the surface were pedicled. In the heart, melanotic tubercles were seen on the external surface beneath the serous membrane; in the interior, also, beneath the membrane, and in the thickness of the organ. They were found, also, in the mucous membrane of the stomach, and in the fibrous tunic of the intestinal canal. The liver, spleen, kidneys, and bladder, were free. The pancreas, testicle, and corpus cavernosum penis, presented examples.—*Cruveilhier, Anat. Pathol.*; liv. xix.

Duration: α , from first appearance of disease to operation, one year; β , from operation until amputation, six years and a half; γ , from amputation until death, thirteen months and a half.

CASE 7. A man, *âgé* 45, in the Hospital Beaujon, presented himself with a vast number of melanotic subcutaneous tumours, which had appeared six months after the removal of a single one of the same nature, situated in the centre of the attachment of the deltoid to the humerus. These growths had been present eighteen months. He complained of lancinating pains in the tumours, and in the interior of the thorax. In a little time the lower extremities became infiltrated; the abdomen became painful, and evidenced, on pressure, the presence of tumours in its cavity; there was obstinate constipation, and the patient sank in a complete state of exhaustion, after many months of suffering. Dissection: melanotic tumours were deposited beneath the pleura costalis, on the surface of the lungs, on the pericardium; in the liver, in the mesenteric and lumbar glands; in the interior and on the exterior of the intestines.—*Cruveilhier, Pathol. Anat.*; liv. xix, p. 3.

Duration: α , from operation to reappearance, "six months;" from operation until death, indefinite.

CASE 8. A man, *âgé* 31, a coal-worker; under the care of Dr. Williams, at the Liverpool North Dispensary, April 24th, 1829. Purple or dark brown stain near base of right scapula, about as large as a pea. This began to grow at the age of twenty-eight, in March, 1826, and increased to the dimensions of several inches in the space of two years and a half. Removal by ligature. Melanotic tumour reappeared in cicatrix in six months. Other dark-coloured spots and tubercles appeared about eighteen months from the time when the primary growth began to advance; these subsequently became manifest in all parts of the subcutaneous cellular membrane. Died 15th November, 1829. No *post mortem* examination was obtainable.—*Trans. Prov. Med. and Surg. Assoc.*, vol. i; p. 244.

Duration: α , From first increase of stain to operation, "three years;" β , from operation until death, "eight months."

CASE 9. A woman, *ætat* 54, under the care of Professor Lobstein. Black spot on inside of left leg at its articulation with the thigh. This gradually became a black wart. Treatment by excision, and various caustics; notwithstanding, the disease became of the size of a hen's egg, and finally softened and ulcerated; others formed about the surface generally. Dissection: numerous black tubercles in cellular membrane. On a portion of skin from the thigh, measuring six inches by two and a half, Professor Lobstein found forty-three small medullary tumours, of a flesh red or blueish colour, of the hardness of cartilage, and all filled with black matter. The liver, lungs, spleen, and kidneys, were affected by melanotic deposits.—*Répertoire General d'Anatomie et de Physiologie Pathologiques*, 1829.

Duration: "six years," from first appearance to death.

CASE 10. A woman, *ætat* 23, under the care of Mr. Lawrence, in St. Bartholomew's Hospital, October 7th, 1841. The left eye. Treatment by extirpation, October 23rd. Died June 6th, 1845. Dissection: deposit of melanotic matter in the diploë of the cranium, on the brain, in the cellular membrane, about the mamma. In the cellular tissue of the integuments of the abdomen were tumours, some of which contained fluid of a brownish hue. Some of the ribs and the dorsal vertebrae contained black matter. There were deposits also in the heart, liver, pancreas, kidneys, ovaries, and intestines.—*Medical Gazette*, October, 1845; p. 961.

Duration: α , from first appearance to operation, "six months;" β , from operation until death, "three years, seven months, and a half."

CASE 11. A woman, *ætat* 43, under the care of Mr. Lawrence, January 10th, 1845. The right eye. Treatment by extirpation, January 11th. In the early part of July she died. Dissection: tumour of black matter, encysted, at base of brain, behind the orbit, of the same character as the original disease. Remnant of optic nerve melanotic. Thorax and abdomen not examined.—*Idem*; p. 964.

Duration: α , from first appearance to operation, "two years;" β , from operation until death, "six months."

CASE 12. A man, *ætat* 45, under the care of Mr. Lawrence. The left eye: commencing without pain in the organ, which had been insensible to sight for six years. Treatment by extirpation, December 5th, 1845.

In May, 1846, there was some swelling of the conjunctiva. There was also some swelling and fulness in the region of the liver, with pain.

October, 1846. A small black subcutaneous tumour developed on the outer angle of the orbit. This was removed. Soon after, another and similar tumour was found in the remains of the conjunctiva. Died in 1848. Dissection not recorded.—*Communicated by Mr. Holmes Coote*.

Duration: α , from operation to appearance of secondary disease,

about "ten months." β , from operation until death, about "three years."

CASE 13. A man, a sailor, age not stated, under the care of Mr. Lawrence. Fungous growth surrounded by melanotic spots in skin of leg. Treatment by chloride of zinc, which removed all the appearances. In a year the disease returned in the same situation, and the inguinal glands became swollen. Result unknown, as the patient declined to submit to amputation, and did not present himself again.—*Communicated by Mr. Coote.*

Duration: from operation to reappearance, "twelve months."

CASE 14. A woman, *ætat* 45, under the care of Mr. Fergusson, in King's College Hospital, December, 1850. Right side of mons veneris. A small pendulous tumour of dark colour. Removal by scissors. Formation of a dark spot in cicatrix, and soon after, subsequent development deeper down, of a tumour of the size of a marble. This attained, in about two years, the size of an orange, and was then excised. The tumour was painful, and was found to be contained in a cyst of condensed cellular tissue, and presented all the character of melanosis. She was discharged well at the end of six weeks.—*Lancet*, vol. i, 1851; p. 622.

Fourteen months afterwards, reported as quite well.—*Lancet*, vol. ii, 1852; p. 176.

Mr. Fergusson informs me that the subsequent history of this patient is unknown to him, but he has no doubt of the disease returning.

Duration: α , from first appearance until first operation, about "two months." From the first to the second operation, "one year and ten months." β , from operation to last report, "fourteen months."

CASE 15. A man, *ætat* 36, under the care of Mr. Critchett, in the Royal London Ophthalmic Hospital, Moorfields, July, 1851. The right eye. Treatment by extirpation, 11th July. In December, 1852, the patient was in good health, and wearing an artificial eye.—*Lancet*, vol. ii, 1851; p. 386; and vol. ii, 1852; p. 588.

Duration: α , from first appearance to operation, "two years;" β , from operation to last report, "eighteen months."

CASE 16. A man, *ætat* 32, an interpreter, under the care of Mr. Fergusson, in King's College Hospital, London, February 20th, 1852. Nævus on left side of abdomen. Treatment: nævus tied, and its cicatrix the situation of a tumour, of melanotic character; this was removed, and was followed by a growth of the same kind in the groin, attaining the size of an orange, and being accompanied by several smaller ones about the umbilicus. All these were removed.—*Lancet*, vol. ii, 1852; p. 176.

Mr. Fergusson has favoured me with the following account of the subsequent progress of this patient:

"The disease returned chiefly in glands about the abdomen, and he died about three years after the last operation. He experienced a deal of pain latterly; and on the *sectio cadaveris*, the disease was found in most parts of the body. The hair, in various parts of the body, became white."

Duration: α , from first appearance to first and second operations not stated; β , from third operation until death, "three years."

CASE 17. A woman, *aetate* 18, under the care of Mr. Lloyd, in St. Bartholomew's Hospital, June 3rd, 1852. A small mole on the outer border of the left foot, of congenital origin. It began to grow at the age of fourteen. In two years it attained the size of a walnut, and was for six months very painful. Excision: the wound had scarcely cicatrised when it reappeared in the same part; and the lymphatic glands of the groin began to enlarge. A second operation was required at the end of six months. The wound healed, and the inguinal glands remained slightly tumid. Eighteen months afterwards, in the groin, was situated a lobulated tumour of the size of two fists. Died August 28th. Dissection: in addition to the tumour referred to, immediately under Poupart's ligament, was a rounded firm lump, of the size of an orange, covered by sound skin, and situated beneath the peritonæum. Its section presented various shades of white, grey, and brown, and was interspersed with nodules of black melanotic cancer. The cicatrix on the foot presented a slightly elevated black patch of the size of a shilling.—*Medical Times and Gazette*, May, 1853; p. 524.

Duration: α , from first appearance to operation, "two years;" when it reappeared almost immediately; and a second operation was needed in "six months." β , from second operation until death, "twenty months and a half."

CASE 18. A woman, *aetate* 60, under the care of Mr. Lloyd, in St. Bartholomew's Hospital. December 27th, 1852. A small brown mole, beneath the body of the lower jaw, of congenital origin. This began to grow, for the first time, in November, 1851. It soon formed a pedunculated tumour, the size of a large hazel nut, and extremely black in colour. In May, 1852, a ligature was placed around it; a second one was shortly required, which left behind a bleeding sore; and soon after this another growth appeared, rather nearer the median line: this grew to the size of a hen's egg.

January 1st. The growth was excised, together with the skin involved in the disease, and one or two lymphatic glands. The wound healed kindly, and she was able to return home in a very short time. On examination, the growth was found to be malignant melanosis.—*Medical Times and Gazette*, May, 1853; p. 523.

Duration: α , from first appearance to operation by ligatures, "six months;" with a renewal in a few weeks, and the production of a

fresh growth. β , from application of ligatures to excision, "seven months."

CASE 19. A woman, *at* 29, under the care of Mr. Gay. Pendulous tumour of a blue-black colour, surrounded by a border of brownish skin, the remains of a congenital mole. Excision: the growth presented the microscopic characters of melanosis. "Three years" subsequently she was in excellent health.—*Medical Times and Gazette*, May, 1853; p. 525.

CASE 20. A man, *at* 23, a cooper, under the care of the writer, in the General Hospital, Birmingham, 16th June, 1854. The skin of the back. Treatment by ligature, etc., and on 28th of June by excision. Died September 14th, 1855. Dissection: apopleptic mischief in brain. Universal deposit of melanosis in subcutaneous cellular membrane of trunk and limbs.—*Vide plate i.*

Duration: α , from first appearance to first operation, "four months." β , from first operation to second, "eleven months." γ , from second to third, "ten months." δ , from the third until death, "fourteen months." It reappeared after first operation in "three months." Second operation, "two months." As a secondary deposit after the third, in "three months."

CASE 21. A man, *at* 35, a grinder, under the care of Mr. Prescott Hewett, in St. George's Hospital, London. The seat of the primary disease was the right flank, from which six years previously Mr. Lawrence had removed a tumour.

May 1st, 1856, Mr. Hewett excised a large tumour from the right groin, and some smaller ones from the left. At this time there were also numerous black tubercles in the subcutaneous tissue of trunk and limbs. The operation involved the removal of the deep and superficial glands, and exposed the sheath of the femoral vessels. On microscopic examination the tumours were found to be encephaloid disease infiltrated with black matter. The operation had been performed in consequence of the patient's extreme desire to pursue his trade for some time longer, which the painful nature and situation of the growths almost wholly prevented. Five weeks subsequent to the operation the wound had healed, and he was about leaving the hospital.—*Lancet*, June 14th, 1856; p. 657.

I am indebted to the courtesy of Mr. Prescott Hewett for a further account of this patient's case. He informs me that "the man attended at the hospital as an out-patient occasionally, when all that was observed was the growing of the tumours on the back. On the 14th of July he was readmitted with loss of motion in the right upper extremity, together with partial loss of sensation in that part, as well as in the leg. The mouth was drawn to the left side, and the right had lost its expression. The pain in the head, so troublesome when in hos-

pital before, recurred with increased severity and persistence. He saw double when the pain was very bad, and his speech was slow and hesitating. On the day previous to his admission he had had severe seizures of shaking of the right arm. His complexion was more yellow. There were tumours in various parts of the body, trunk, right axilla, left ham and thigh, etc., growing rapidly. Two days after readmission a vomiting of green bilious fluid, present when an inmate before, again became troublesome, and persisted for a week ; and from this time to the date of his death he vomited his food occasionally. He went on much in the same state until the 28th, when his face suddenly turned purple, there ensued great difficulty of breathing, and he died in a few minutes. Dissection : in addition to tumours mentioned above, there were melanotic and encephaloid deposits under serous covering of both lungs, the surfaces of which was also studded with them. The bronchial glands and posterior mediastinal were similarly affected ; the heart was studded with them, and the sub-pleural tissue over the ribs contained a few. The liver contained two masses, one as large as an orange. The omentum and mesentery several, one about the size of a small apple, hanging by a pedicle. The pancreas several. The right kidney very much congested, the medullary cones almost of a black colour. The left kidney very much enlarged, the size of a cocoanut, the cortical and medullary portions wanting, a mere cyst remaining, full of melanotic deposit. The lumbar and aortic glands, as well as those of right external iliac artery, of the inguinal canal, and of the deep inguinal region, were extensively infiltrated with melanotic cancer. The brain contained a large melanotic tumour in the posterior part of the left hemisphere, and there was extravasation of blood in the cerebral structure."

Duration : α , from first appearance of disease to operation, "not stated." β , from first operation to second, "six years." γ , from second until death, "three months."

CASE 22. I am still further indebted to Mr. Hewett for the following : "Mrs. * * *, *ætat* 59, was first seen by me in June, 1856, for a tumour, larger than the fist, oblong in shape, and involving the whole length of the right labium. It was irregular, and somewhat lobulated on the surface ; it was ulcerated towards its lower part, and at times it bled freely. It was offensive, and very painful, with sharp shootings at times. The tumour itself was of a dark colour throughout. There were numerous small hard black spots, none larger than peas, scattered over its surface ; and in the skin, over the right side of pubes and groin, where also the glands were enlarged."

"History. First noticed six or eight months back ; it was then the size of a sixpence, and was thought to have come on a brown spot, on cutaneous surface, known to have been there for many years.

Its growth at first was slow, but very rapid of late. The lump in groin made its appearance within two or three months. No other morbid appearance in any other part of the body. No member of family known to be affected with cancer. An operation was proposed simply to get rid of the offensiveness, pain, and bleeding, most trying to the patient and her friends. The whole tumour, the black spots, and all the enlarged glands in the groin, were removed. Two or three small black specks, scattered deep in the wound, were also dissected out, leaving the cut surface apparently clear throughout. The whole of the parts removed were melanotic. The wound healed, without a single drawback, in four or five weeks; and she was enabled to be up, to walk about, and to drive out. After a time came nausea and vomiting after meals, with occasional rambling. In August, one or two small black spots appeared in neighbourhood of cicatrix. In September, there was great prostration; the rambling and vomiting continued, but she was free from pain. Towards the latter end of this month she became insensible, and remained so for about three weeks, passing everything under her; at the end of which period she gradually recovered her senses. Vomiting was present at intervals for several days. She went on thus with tolerable appetite, and not an ache or pain, until the middle of December, when she died suddenly. The black spots in the neighbourhood of the cicatrix were the size of beans. There was no examination after death."

Duration: α , from first appearance to operation, "eight months;" β , from operation until death, "six months."

CASE 23. A man, *ætat* 36, an engineer, under the care of Mr. Fergusson, in King's College Hospital, 20th December, 1856. The primary disease was a small fungous growth, of a black colour, on great toe of right foot. Removal: soon after operation, a small black spot, the size of a pin's head, formed between the first and second toes. Two years afterwards a swelling formed in right groin, below Poupart's ligament; and eighteen months after that a second one appeared above. These were excised five years after the first operation. The patient subsequently went out quite well.—*Lancet*; March 21st, 1857; p. 290.

Duration: α , from first appearance to operation, not stated; β , from operation to reappearance, not specified; γ , from first appearance of melanosis after first operation to the second, "four years."

CASE 24. A man, *ætat* 65, under the care of Mr. Moore, in the Middlesex Hospital, May, 1855. Black fungoid growth, situated at the right edge of the sphincter ani, in an ulcerated condition, bleeding freely. The disease did not extend far into the bowel.

May 11th. Excision of the growth, together with a large portion of the external sphincter. He recovered, with perfect control over the bowel; and remained tolerably well for nearly a year, when the disease

manifested itself higher up in the bowel. The last note recorded that he was evidently sinking with the extension of the disease internally.—*The Lancet*; *idem*.

Duration: α , from first appearance to operation, "two years;" β , from operation to the date of last report, March 21st, 1857, nearly "two years." There being marked return in the same spot in "twelve months" after.

CASE 25. A woman, *etate* 43. The eye. Treatment by extirpation. Died at the end of six months with return of disease in brain.—*Communicated by Mr. Coote.*

It is difficult to form a satisfactory notion of the total duration of the cases included in the preceding list, so many of them are deficient in an accurate statement of the length of time the disease was present before operation.

To have been enabled to compare the total duration of cases submitted to operation with those permitted to run their courses uninterfered with, would have been in the highest degree important; but this, on a careful consideration of their histories, was found to be utterly impracticable, so lamentably deficient were the records in regard to the merest essentials for this object.

TABLE I. TOTAL DURATION FROM FIRST APPEARANCE TO TERMINATION.

Case 1.	Eye	33	months.
"	2.	Skin	.	.	.	.	.	.	.	.	.	.	.	.	21	"
"	4.	Eye	.	.	.	.	.	.	.	.	.	.	.	.	15 $\frac{1}{2}$	"
"	5.	Skin	.	.	.	.	.	.	.	.	.	.	.	.	24 $\frac{1}{2}$	"
"	6.	Skin	.	.	.	.	.	.	.	.	.	.	.	.	103 $\frac{1}{2}$	"
"	8.	Skin	.	.	.	.	.	.	.	.	.	.	.	.	44	"
"	9.	Skin	.	.	.	.	.	.	.	.	.	.	.	.	72	"
"	10.	Eye	.	.	.	.	.	.	.	.	.	.	.	.	49 $\frac{1}{2}$	"
"	11.	Eye	.	.	.	.	.	.	.	.	.	.	.	.	30	"
"	17.	Skin	.	.	.	.	.	.	.	.	.	.	.	.	50 $\frac{1}{2}$	"
"	20.	Skin	.	.	.	.	.	.	.	.	.	.	.	.	39	"
"	22.	Skin	.	.	.	.	.	.	.	.	.	.	.	.	14	"

Of the series in which the skin was the primary seat, eight cases have their total duration recorded. The average duration from first to last in these was somewhat more than three years and ten months.

Of the series in which the eye was the primary seat, four cases have their total duration recorded. The average duration in these was two years and eight months.

Regarding the duration of the two classes irrespective of locality, the average duration was rather more than three years and five months.

The cases in the foregoing table which are most prominent in the

length of their duration are Nos. 6 and 9. Both of these were treated by caustic in their earlier stages.

TABLE II. SHOWING THE DURATION OF LIFE AFTER OPERATION.

Case 1.	Eye	3 months.
„ 2.	Skin	12 „
„ 3.	Eye	10 „
„ 4.	Eye	6½ „
„ 5.	Skin	5½ „
„ 6.	Skin	91½ „
„ 8.	Skin	8 „
„ 10.	Eye	43½ „
„ 11.	Eye	6 „
„ 12.	Eye	36 „
„ 13.	Skin	12 „
„ 14.	Skin	36 „
„ 15.	Eye	18 „
„ 16.	Skin	36 „
„ 17.	Skin	26½ „
„ 19.	Skin	36 „
„ 20.	Skin	35 „
„ 21.	Skin	3 „
„ 22.	Skin	6 „
„ 23.	Skin	48 „
„ 24.	Rectum	24 „
„ 25.	Eye	6 „

From a consideration of this table it appears that of the twenty-two cases from which it is compiled, in fourteen the primary seat of the disease was in the skin, including one belonging to the lower end of the rectum. The remaining eight had their primary seat in the eye.

In the first series, the skin, the average duration of life after operation was twenty-seven months.

In the second, the eye, the average duration was sixteen months.

Irrespective of locality, the average duration in the twenty-two cases was twenty-three months after operation.

The above averages are rather under than over the estimate, inasmuch as in the skin cases, Numbers 12, 14, 19, 23, and 24, the exact date of the termination is not recorded, whilst in regard to 16 the duration between the first and second, and second and third operation is not given.

So also No. 15, in the eye, the case is not recorded beyond eighteen months subsequent to operation.

From a table of fifteen accurately observed cases, Mr. Coote* ascertained that the average duration of life after the removal of the primary disease by operation, did not amount to more than thirteen months and a half; but this average refers to cases in the eye and skin, taken in combination.

* *Lancet*, vol. ii; 1846; p. 144.

TABLE III. SHOWING THE CASES, AND THE PERIOD, IN WHICH RECURRENCE TOOK PLACE AT THE ORIGINAL SEAT, AND THE PERIOD ALSO WHEN SECONDARY DEPOSITS MANIFESTED THEMSELVES EXTERNALLY.

Case 1.	Eye—reappeared in orbit in 3 months.				
,, 2.	Skin	„	cicatrix	1½	„
,, 3.	Eye	„	orbit	10	„
,, 4.	Eye	„			secondary deposits in 3½ months.
,, 5.	Skin	„			secondary deposits in 4 „
,, 6.	Skin	„	cicatrix, no time specified.	„	2 months.
,, 7.	Skin	„		„	no time specified.
,, 8.	Skin	„	cicatrix	6 months	„
,, 9.	Skin	„	cicatrix, no time specified	„	„
,, 10.	Eye	„	orbit	43½ months	„
,, 11.	Eye	„	orbit	6	„
,, 12.	Eye	„	orbit	12	„
,, 13.	Skin	„	cicatrix	12	„
,, 14.	Skin	„	cicatrix, almost immediately		
,, 15.	Eye	„	case not terminated	„	
,, 16.	Skin	„	cicatrix, no time specified	„	„
,, 17.	Skin	„	cicatrix, almost immediately		
,, 18.	Skin	„	cicatrix	„	
,, 19.	Skin	„	case not terminated	„	
,, 20.	Skin	„	cicatrix	3 months	„
,, 21.	Skin	„	cicatrix, no time specified	„	
,, 22.	Skin	„	cicatrix	2 months	„
,, 23.	Skin	„	cicatrix, almost immediately		
,, 24.	Skin	„	cicatrix	12 months	„
,, 25.	Eye	„	orbit	6	„

The examination of table iii, gives the following results :

Of twenty-five cases, twenty-two manifested a recurrence in the cicatrix, or displayed secondary deposits in the subcutaneous tissue, or exhibited both. Of the remaining three cases, in one, the parts connected with the primary seat were not examined after death; and in the other two, the final reports are not given. Of sixteen cases in which the disease was located in the skin, recurrence took place in the cicatrix, in fourteen; in six, in the cicatrix and subcutaneous tissue; and in two, in the latter locality only.

The rapidity of recurrence was ascertained in ten instances.

Under and not exceeding three months	7
" " six " 	1
" " twelve " 	2

Of six cases in which the disease was located in the eye, and recurred in the orbit; in two cases, it recurred as well in the subcutaneous tissue.

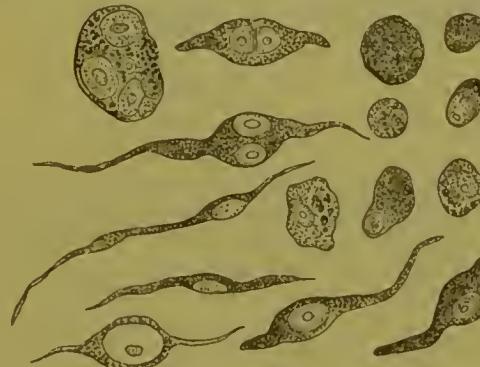
The rapidity of recurrence in these cases was—

In three months	1
In six months	2
Under and not exceeding twelve months	2
Between three and four years	1
	6

As to the nature of the disease, almost all pathologists consider melanosis to be medullary cancer, with black pigment superadded. They further believe that the deposit of the pigment in the elementary structures of any kind of cancer is sufficient to entitle it to the name of melanosis. The scirrhus cancer, comparatively rarely, however, becomes associated with melanosis, but the medullary is constantly encountered, presenting every possible degree of admixture.

The cut aspect of a tumour of melanotic cancer presents the consistence and the appearance, except as to colour, of medullary cancer ; and even this exception to the complete resemblance is only partial, as portions of the same tumour frequently display an absolute similarity in all respects.

Examined by the microscope, melanosis is found to present the same histological elements as are met with in encephaloid growths ; with this difference, that granules of black pigment are found within the cancer cells, or interspersed amongst the other elements of the growth. These are well represented in the subjoined woodcut, which I have copied from Wedl. In other respects—in dimensions, in multiplication, in rapidity of growth, in the attacking almost any part and any age ; and, in a word, in maintaining preëminently the cancerous features of destructiveness and incurability, the melanotic closely pursues the same course as the medullary tumour.



The description that I have previously given of melanosis will be quite sufficient to distinguish it from every other disease, with the exception of non-malignant melanosis of the skin. I will therefore briefly enumerate the chief differences between them. Malignant cutaneous melanosis arises generally in one spot, and that of small size. It is brownish-black, or black, in colour. It is almost invariably adjacent to some congenital cutaneous affections, as moles or warts. It is sooner or later accompanied by the constitutional symptoms above referred to ; and whilst it advances slowly in the skin, the secondary deposits form very rapidly.

Non-malignant cutaneous melanosis generally arises in many spots, and these of large size, at the same time. They are, moreover, of a deep black colour; and they never give rise to cachectic symptoms.

Medicine has yet afforded no aid in the relief of melanosis beyond that which belongs to the requirements of cachectic conditions generally. The consideration of the facts contained in the cases I have detailed, leads to the conclusion, that the removal of the disease by the knife is followed by the same results as have hitherto attended the removal of medullary cancers.

At present there are no data from which the average time can be ascertained that patients have survived after the removal of melanotic growths by the knife, which lead us to presume that that proceeding is attended by any more successful results than it is in cases of encephaloid in the same organs. We are not, therefore, in a position to lay down any rule of treatment different from that which is now generally received by the profession in cases of malignant disease. I, however, hope, before long, to resume this part of the subject; in the meantime I am desirous of calling the attention of all interested in this matter, to the greater comparative duration of life in those cases that I have related that were treated by caustic; and I deem it desirable, in the highest degree, that further trials should be made of it, either by itself, or in conjunction with the knife, in the treatment of this most malignant disease.

London, New Burlington Street,
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